

WILLARD'S GEOGRAPHY
FOR BEGINNERS;
OR THE
INSTRUCTOR'S ASSISTANT
IN GIVING

First Lessons from Maps,

IN THE STYLE OF
FAMILIAR CONVERSATION.

THIRD EDITION.

With an Atlas,
ADAPTED EXPRESSLY TO THE WORK.

BY EMMA WILLARD,
PRINCIPAL OF TROY TEMPLE SEMINARY.

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Mrs. Emma Hart
Willard
Geography for beginners

for them ; and also, where you might send for such as are needed here.

Should you be a statesman, and be chosen to some public office, it would be your business to manage the affairs of your country to the best advantage. Many of our most interesting national concerns relate to foreign countries, and it would be impossible for you to proceed with your duties without knowing the geography of those countries ; and still more impossible to succeed without an intimate acquaintance with the geographical situation of your own.

Besides the advantages of the study as regards the gratification of a laudable curiosity, your reputation as a person of information, your success in business, and your usefulness to your fellow beings, there is another very important consideration. The study of geography may lead your mind to pious reflections, by bringing to your view the power, wisdom, and goodness of God. The immense countries of which geography will inform you, with all their products of men, animals, and vegetables, the lofty mountains, whose tops rise above the clouds, the great rivers which flow down their sides, and after passing through extensive countries, mingle with the vast ocean—all these are the workmanship of His hands, whose creatures we are. When we consider the power which he has displayed in their creation, the wisdom with which he has fitted them to their various uses, and the goodness with which he has adapted them to the wants of his living creatures, while we contemplate *them*, we shall learn to adore *Him*.

LESSON SECOND.

PART I.*

DEFINITIONS.

PLAN OF AN INTRODUCTORY MAP.

Mother. The earth on which we live, although it appears to stretch out all around us like a vast plain, has been found to be a great globe or ball. People live on every side of it. The blue heavens and the stars are around it on every side. When the sun, which shines on all its parts, though not at the same time, is giving his bright light, the stars cannot be seen. The people which live on the earth, let them stand on which side they will, always stand with their feet pointing towards the centre of the earth, and they always suppose that the part of the heavens to which their own heads point, is the highest.

Frank. So then it is only in our own fancy, that our own heads are uppermost.

Mother. It is even so. The whole earth is covered with land and water, but the water spreads over rather more than twice as much surface as the land. The first step then towards learning the science of Geography, which you recollect I told you is a description of the earth, is to become acquainted with the divisions of land and water as they were formed by their Creator: and the names which the inhabitants of the earth have given them.

But mere words could never convey to the mind the infinite variety of forms which the different parts of the earth's surface assume. Drawing is therefore used and pictures are made representing

* In the second edition some of the lessons are so much extended that it was judged best to separate them. That the books of the first and second edition may be used in the same classes, a new numbering of the lessons has been avoided.

the seas and countries, with their rivers, mountains, &c. on globes or maps. These pictures or delineations, are a language speaking to the eye, and may be said to be the most important written language of geography. My object must now be to make you acquainted with the nature of maps, which are more convenient for common use than globes. When you study a map, you must think not merely of the map itself, but of the country which it represents. But this is very difficult, because they are very little pictures of very great things, and there are a multitude of objects in a country of which no notice can be taken, on so small a space. When you have learned the divisions of the earth's surface, which you will of course do while you are studying your maps, you will be able to understand my further instructions concerning the productions of different countries and the circumstances of their inhabitants.

Frank. When I have been thinking of learning geography, the different places of which I have read and heard come into my mind, but they all seem disconnected, and it appears to me, that if you should begin by attempting to teach me the situation of any distant place, I should not have an idea of it, because there would seem to be a gap between this place and that. Why would it not be a good plan for you to begin here where we are, and show me what countries are next in every direction, and then what countries are next to them, and so on till we take in all the countries, to the very ends of the earth.

Mother. When you speak of the ends of the earth, you forget that it is a globe, and that to a round ball there is no end; but I believe it is as natural for people to suppose that they stand in the middle of the world, as to suppose the top of the heavens is over their heads. But in general I like your plan; it is the one I had intended to pursue as far as practicable.

Frank. I have often remarked on maps a straight line, divided into equal parts, called a *scale of miles*, but I never knew what it meant, or why it was placed there.

Mother. But you will find there is much information to be obtained from it.

A *scale of miles* for any map, shows what space on the paper is taken for a mile, or for ten, one hundred, or any number of miles on that map.

I draw this line for my *scale of miles*. (See the map.) I divide it into two equal parts, and one of these parts I assume for a mile. That is, I will draw my map so that a space on it equal to this line, shall represent a mile of the place I am to delineate.

Frank. This is a very short line to represent all that distance.

Mother. But yet it is very common to draw maps so that a line shorter than this shall represent a hundred miles. Observe that I can take what line I please on my map to represent a mile. What would be the effect if I took a longer line than this, or a shorter one?

Frank. If you took a longer one, your map of the place would be larger; if a shorter one, smaller.

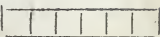
Mother. Right. This town is six miles square. So that the lines on the outer edge of my map must each be as long as six of this. That is, each side must be six miles in length by my *scale*.

Do you understand the difference between six miles square, and six square miles?

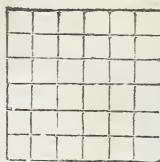
Frank. O my master in arithmetic taught me that. A place to be six miles square must be six miles in length and six in breadth; but it will contain six square miles if it is six miles in length and only one in breadth.

Mother. I find your teacher has been beforehand

with me. I had prepared these little figures to show you the difference. As we shall hereafter attend to the size of countries by comparing their number of square miles, you must remember that they are equal to the length of a country multiplied by its breadth. The number of square miles in our town equals 6 the length, multiplied into 6 the breadth, which makes 36.



six square miles.



six miles square, containing thirty six square miles.

LESSON SECOND.

PART II.

My next business will be to draw the boundaries of the three parishes into which the town is divided. As my face is to the north, I shall naturally put the northern parts of the town on the top of my map, the eastern on the right hand side, the southern on the bottom, and the western on the left hand. Boundaries are represented on maps by dotted lines. Observe those between the parishes.

Frank. But there are no lines, or walls, or marks upon the ground. How then do people understand where one parish ends, and another begins?

Mother. When the lands for a town are measured out, or as it is termed surveyed, the Surveyors sometimes fix on some remarkable natural object, as a great tree or rock, or sometimes erect some monument, and reckon by straight lines from one to the other, and sometimes a range of mountains or hills, or a river, is taken as a line of separation. This is called a *natural boundary*. Some such are on our little map, and as I cannot give the boundary without them, I sketch them here, although I have

not yet taken up the subject of rivers and mountains. Where are they?

Frank. But I should think the people, if there were no marks or walls on the ground, would after a while forget and so quarrel about their boundaries.

Mother. To prevent this, the surveyors make out maps, laying down the boundaries carefully. These maps geographers copy. You will see written on many maps "compiled from actual survey." Written descriptions of boundaries are also given by the surveyors which are deposited in places set apart in towns and states to receive public records. Boundaries between different nations, are matters which are settled by treaties, which are written agreements, which those nations make with each other. After all, you are not wrong in supposing that people will sometimes misunderstand and quarrel about them. Farmers go to law, and nations fight battles about their boundaries.

Any place is said to be bounded by those places which are next to it on all sides. Now let us bound our own parish of D. Point with your finger and show me in what direction are the towns and parishes adjoining.

Frank. West is parish B.; east is the town of X.; north are the mountains, and on the other side of them is the town of R.; and south is the parish A.; but it is not exactly south.

Mother. No matter, that is sufficiently correct. Such cases frequently occur, and we must be content to come near the truth if we cannot hit it exactly. But it is important to have a certain way or method in every thing we do. Then we are not at a loss where to begin, nor where we have ended. Therefore let your method in tracing boundaries be this. First mention the northern boundary, then the eastern, then the southern, and lastly the western. Whenever a river or mountain forms a part of

the boundary, you should be particular to mention it in your description. According to this method, I would say the parish D. is bounded on the north by the town of R. ; east by the town of X. ; south by the brook which separates it from parish A., and west by parish B. Sometimes in describing boundaries you will have occasion to use the terms, north-west, north-east, south-east, south-west. When you do, use them in the order in which I have just mentioned them. For example, if you were to bound parish A. which you perceive is triangular, or three sided, it would be proper to say it is bounded north-west by parishes B. and D. ; east by the town of X., and south by the town of W.

Next, I will put down the rivers. Large rivers are represented on maps by double lines, and small ones by a single line. I will now draw the pond which is north east of us. The boundary between the water and the land, which is called the *shore*, is drawn much like a river. Shades are drawn from this line towards the part which represents the water.

Next I will draw the island in the pond. What is an *island*? You must learn to express what you know ; and you already understand what an island is as well as any geographer can teach you.

Frank. Why, an island is land with water all around it.)

Mother. Very correct. Here are two small ridges of mountains, which as they constituted a part of the boundary, I was obliged as I mentioned to sketch at first, one on each side of the pond, and these must be represented by a kind of shading. Southeast of us is the high hill, which being a single elevation, must be represented by a small picture of a hill, with its sides shaded. Formerly such elevations were drawn with the tops pointing to the north, and the western side shaded, as I have drawn the high

hill. At present the person drawing the map is supposed to be looking down upon the earth from some distance above it, and a hill or mountain is represented by shades running each way from its top, as I have drawn the mountains north-east of us.

LESSON THIRD.

PLAN OF AN INTRODUCTORY MAP CONTINUED.

We will next delineate our principal city and villages; but how shall I proceed? You know I could not on this little piece of paper make a picture of every house.

Frank. I should think it would be as well to write the name of the village on the part of the map where it belongs, or to put down some little mark to represent it. If we understand that this signifies the place where there are many houses, it is as well as if the pictures of them were really made.

Mother. Very well. And this is actually the method of map-makers. Great cities, as well as small villages, are represented in maps, by placing their names on the part of the map which represents the spot where they stand. I shall represent our city of C. in the same manner as the villages of A. and B. A small circle is frequently placed to mark the site of a city or village more exactly.

Now let us draw the principal roads. Roads are delineated on maps by double lines.

If I divide my map into nine squares in this manner, the part of the town within the middle square is said to be the central part; that directly above it, the north part; that between the north and east parts, the north-east, and so on as described upon the map.

Our house stands on the road from the village of A to the village of B, two miles and a half from the

northern boundary of the town. Can you point out its exact situation on the map?

Frank. Now I see the use of the *scale of miles*. By that I can find how much two miles and a half are on this map. I will cut a slip of paper long enough to reach quite across it. I will divide this into miles by the *scale*. I can then find the distance between any places on the map. Here is my paper. This is two miles and a half from the north line to the road, and this is the place for our house.

But could you not make many more objects on this map? You know the land is divided into farms; could you not make out the boundaries of each farm, and put down some little mark for the place where the farmer's house stands?

Mother. Not only is the parish divided into farms, but each farm is divided into separate fields. Do you think I could represent each one of these on my map?

Frank. I think not. For in that case the map would be nothing but boundary lines, and it would be so confused, that I could not select one from another.

Mother. You now see the correctness of what I remarked to you, that as the map is so very much smaller than the place, only the most important objects can be delineated. But the *scale* of this map is very large, compared with that of most of the maps which you meet.

Frank. Why, surely, this is a very small map.

Mother. Yes, but it may be on a larger *scale* than one twenty times as large. One map is said to be on a larger *scale* than another, (when a mile on the first is a greater distance than a mile on the second; and this must be determined by comparing their *scale of miles*. Here is a map of the United States, and here is its *scale of miles*. One mile on our *scale* is equal to about fifty miles on this; so that our map

is on a *scale* about fifty times as large, although, as you perceive, it is a much smaller map. Suppose that on a paper the size of ours, I should now make a map of the state in which we live, which is at least a hundred times as large as this town, could I then represent this town as I have here represented it?

Frank. Why, if the map is to be no larger, and the state of which you are to make the picture is a hundred times as large, then the picture of this town must be a hundred times smaller than this which you have now drawn; and in that case if you should put as much upon it as you have here, it would be as much confused as this map would be, with all the farms and fields marked upon it. So I suppose that on such a map you could not place the boundaries of the parishes, or the names of the villages. Indeed, on such a map, the town itself could hardly be noticed.

Mother. You are right; and the counties, each of which contains several towns, would not appear so large as the parishes on our map.

Note to Instructors.—In the opinion of the author, every instructor ought to make out, however rudely, a map of his own town; as it will much more forcibly impress upon the mind of the pupil the connexion of the parts of the map, which signify objects, with the objects themselves. The author believes that children frequently learn maps, without thinking of the countries, rivers, &c. but merely of the map. Several passages of this work are inserted to aid them in acquiring juster views; but the best method unquestionably is to see that their first impression is correct. After having learned the map of the town, the teacher might be furnished with a map of his own state, and directing the attention of the pupil to the county in which he lives, ask, What town lies next to this on the north? On the east? On the south? On the west? Then the names of the counties might be learned, and their direction from the county in which the scholar lived, and from each other. Then taking the whole state, ask, (if there is a scale of miles.) How many miles is this state in length? In

breadth? What are the principal towns, rivers, and mountains? &c. In New Hampshire and Vermont, introductory books have been published, designed expressly for the children of those states.

LESSON FOURTH.

DEFINITIONS, &c.*

Mother. Here are some maps of the United States of America, the country in which you live. They are prepared in a manner convenient for your use, care being taken to make them simple, so that you need not be confused by a multitude of names and objects. In the first, the boundaries and names of the states are almost all that is set down; in the second, the names of the states are left off, and those of the rivers, divisions of water, &c. inserted; the third has all the objects which are delineated on a common map.

Divisions of land and water, from the circumstances of their size, shape, and situation, have received particular names. The first use which I shall make of these maps, will be to give you some farther instruction concerning them. In this lesson you may answer the questions from either map, as you find most convenient. You may now look on your map, and tell me which is land? which water? which objects are rivers? which boundary lines?

The largest division of water is called an *ocean*; the largest division of land a *continent*. These will be best explained when we come to the map of the world; but I must mention them here, because the country which I show you, is a part of a continent, called the Western continent, and is bounded on the east, as you perceive, by a part of an ocean. What is this ocean called?

* See first, second and third maps.

Parts of the ocean which extend into the land are called *Seas*, *Gulfs*, and *Bays*. The water of this is, of course, salt, like that of the ocean. For examples of these divisions of water, look on your second map. South of the United States is the Gulf of Mexico, of which only a part is on your map. This might with equal propriety have been called a sea; so might the Gulf of St. Lawrence, which you may see on your map north-east beyond the bounds of the United States. In this part of the world it is common to call the large divisions gulfs, and the smaller ones bays, but you will find by the maps of other countries, that this is not always the case. There is also a remarkable bay north-east beyond the United States. What is it called? What are the largest bays on the coast of the United States?

Sailors measure the depth of waters by a line, which is divided into equal parts of six feet each, called *fathoms*. This process of measuring depths is called *sounding*. Water has never been sounded, or measured with the lead and line to a depth greater than 4680 feet. Some parts of the ocean are no doubt many times deeper than this. Where a collection of water partly surrounded by land has been sounded, it is called a *sound*. There are three principal sounds in the United States. Describe their situation.

Frank. But what are these on the top of the map, which so much resemble the picture of the pond on the map of our town?

Mother. They are called *lakes*, and are like ponds, in this respect, that they are collections of water inclosed by land, but they are larger. Some of these are larger than the whole state in which we live.

When several single lakes are connected by narrow passages of water, they are called a *chain of*

lakes. Narrow passages of water which connect large bodies are called *straits*. Here are the straits of Mackinaw, on most maps spelled Michilimackinack, which connect the lakes Michigan and Huron.

A portion of land nearly surrounded by water, is called a *peninsula*. The most remarkable peninsula belonging to the United States, is that of Florida; the whole of which is not on your maps of the U. States. The next is that of Cape Cod, which reaches out into the sea like an arm with the elbow crooked. Find them on the map, and tell me their situations.

A *Cape* is a point of land extending into the water. This is sometimes expressed simply by the term *point*. Sometimes the whole of a small peninsula is called a point, or cape. A bay frequently puts up from the sea between two capes.

What are the two capes at the entrance of Massachusetts Bay? Of Chesapeake Bay? Of Delaware Bay? Where is Montauk Point? Sandy Hook? What other capes do you find on your map?

I have now commenced teaching you the geography of our own country, the United States of America. This, as you perceive, is composed of several different states; but these states form one nation, because they are united under one government. The whole name, The United States of America, is so long, that it is sometimes called the United States, and sometimes America. In books of Geography it is generally called the United States, but in books of History it is called America, and its inhabitants Americans.

This country now extends much further to the west than these maps represent, but as the land is mostly in an uncultivated state, it is not necessary to learn so particularly the geography of the western part.

Now stand with your face to the north. This is our own state. Place your finger upon it. What state lies next north of it? What next east? south? west? These you know are the states which bound it. Now place your finger again on our own state, and trace towards the top of the map, and tell me all the states which are directly north of it, mentioning that nearest to our own state first, and then the one next north of that, and so on in their order. Now tell the states directly east in the same manner; then those south and west. Now begin again with our own state, and trace the states north-west; next those north-east, then those south-east and south-west.

Now take a strip of paper measured by the scale of miles, and tell me about how long our state is, reckoning it the longest way. What is about its breadth? Here, where I make this dot, is the place in our state where we live. How far is it from this point, measuring north, to the northern boundary of our state? to the northern boundary of the United States? to the eastern? southern? western? How do the states which border on our own state compare in point of size? Which appears to be larger or smaller than our state? Which appears to be the largest of the states? Which the smallest? Now take some other state, and suppose you lived there, tell me what state would then be north of you? east? &c.

We will now pay attention to the boundaries; but a difficulty here occurs, as in the map of our town, and we must get over it as well as we can. If we study the boundaries first we must often refer to rivers and other divisions of water, of which we have as yet learned nothing. But if we began with the divisions of water, we should be obliged to refer their situation to countries or states with which we

were also yet unacquainted. On the whole I prefer commencing with the boundaries, and for this purpose you may take the first map. If you do not find the names of some bays, rivers, &c. which you want in describing the boundary, you can easily find them on your second map. I might have put more names on this, but my plan for you is, that you should not only study but draw your map. This will at first be somewhat laborious and perplexing. To make your task easy, the first map which you are to draw is made plain, and not confused with many names and objects. But you must not be discouraged if your first efforts are rude. You will soon become accustomed to the exercise, and will then find it a delightful occupation, and it will not only be the best way of acquiring an accurate knowledge of the shape and situation of the different parts of the earth's surface, but this exercise may be considered as first lessons in the elegant art of drawing, to acquire which, the first steps are to learn to measure distances by the eye, and to guide the hand as the eye directs. When this power is acquired, it may be applied as you please, in delineating the surfaces of countries, as in maps, or making pictures of trees, houses, &c.

Frank. It will be delightful to be able to make pictures of any thing, just as I please. Shall I get some paper and a lead pencil?

Mother. That would do, but I prefer your using a slate and pencil, or what is rather better still, a black board and chalk. The marks then show plainly, and rub out easily, and you can make your map large.

You may begin your map by making the lines which inclose it. Draw them twice as long as those on the first map; then your whole map and each separate state will appear four times as large; if

you should increase the line three times, the whole surface of the map would be increased nine times, and so on.*

After fixing the size of your map by drawing the outside lines, next draw the lines which cross the map from top to bottom, and from side to side. These you perceive divide the map into squares, which will much assist you to keep the drawing correct, as you must take care to draw every part in its own square. Draw the outline of the coast, in the first place, and then the boundary lines of the states; but you need not set down their names. These I expect you to remember, and tell me as you point to the place itself. This I call explaining your map.

Frank. Are these lines which cross the map made merely to assist me in drawing my map correctly?

Mother. Oh, no. They are a kind of lines of the greatest importance to the whole science of geography. I can better explain them to you when we take up the map of the world. Those drawn from the top to the bottom are called *meridians*, or lines of *longitude*.—Those from side to side *parallels of latitude*. Just enough of them are placed on this map to divide it into squares convenient for drawing; and hereafter, when you draw the other maps, as you are learning them, you may leave off a part of the lines of latitude and longitude, if you find that there are so many, that they make your task difficult.

When you come to take your next lesson, you must bring your map.

* That is, the size of the map increases, not simply as the bounding lines increase, but as the square of the number by which these lines are increased.

LESSON FIFTH.

Frank. I have brought my map. I assure you, however, that I have labored very hard to make it as it is.

Mother. Indeed, Frank, I consider it very promising, for a first effort. You have left off the names of the states, as I directed, and you must now explain it, that is, point to the states and tell me their names from recollection.

Very well explained. The way in which I shall now direct you to name them from your map, is that in which I wish you to repeat them from memory, when you come for your next lesson.*

* *To Instructors.* A difficulty occurs on account of two different methods of instruction being contemplated by this little work; one, by the pupil's *studying* the maps; the other, by his *drawing* them. That of drawing is the most thorough method of impressing the subject on the minds of the pupils. Indeed it is studying the maps with the additional advantage of that permanency of impression which must be made by their dwelling on each part long enough to draw it; and it has also the benefit mentioned in the text, of its being an introduction to an art whose general and improved cultivation, is, I believe, to constitute one of the greatest improvements in education which remains to be made. But as it will be inconvenient in many schools, to practise the drawing of maps, this work will, therefore, except in occasional passages, proceed with reference to the method of studying them. The instructions given in this way, concerning maps, will none of them be useless to the teacher, whose classes draw maps, as the pupils will want them in acquiring a proper method of explaining their own. In either case of teaching, the pupil should be able, eventually, to describe to his instructor without looking at any map. Drawing without any map before the scholar, is a method of examining, which is analogous to descriptions given in words from memory, as it is an infallible test that the ideas thus produced have been previously received into the mind.

First, then, begin at the north east corner of the map, and learn the states which lie on the coast of the Atlantic. Be particular to learn them in their order. The first you perceive is Maine ; the second is New Hampshire ; the third, Massachusetts ; the fourth, Rhode Island ; the fifth, Connecticut ; the sixth, New-York. Proceed and learn the remainder yourself.

Now begin at Florida, and trace westerly, and tell me what States lie on the southern coast.

Next learn the states on the eastern coast of the Mississippi River—beginning south, and tracing north. The first is a part of Louisiana, the second is Mississippi. Keep on, and learn the remainder yourself.

Now begin with the Northwest Territory, and trace from west to east, the states which lie on the northern boundary of the U. S. These are eight, including the Northwest Territory. Name them in their order.

What are the three states which lie on the northern shore of the Ohio River ? What two on the southern ? There are six states which lie east of N. Y. These are called eastern states, and also New England states ; which are they ?

As you now know the names of the States from their appearance and situation on the map, I leave off these names on your second map, and here divide the United States into what are called its grand divisions. These are—1. The Eastern or New England States. Of what states is this division composed ? 2. The Middle States—What states does this division include ? 3. The Southern states—Which are they ? 4. The Western States—Which states and territories are they ?

You may now proceed to bound each state of these divisions separately, commencing with the

Eastern States, in the same manner that I taught you to bound the parishes of our town. I will at first assist you, by bounding some of them for you. Maine is bounded N. by a range of mountains which separates it from Lower Canada ; E. by New Brunswick, from which it is in part separated by the river St. Croix ; S. by the Atlantic Ocean ; W. by New Hampshire.

New Hampshire is bounded N. by Lower Canada ; E. by Maine and the Atlantic ; S. by Massachusetts ; and W. by Connecticut River, which separates it from Vermont.

Massachusetts is bounded N. by Vermont and New Hampshire ; E. by the Atlantic ; S. by the Atlantic, Rhode Island and Connecticut ; and west by N. York. I have shown you the method of describing boundaries, and you must hereafter describe them yourself ; but to accustom you to the use of correct terms, I will sometimes, especially where there is any difficulty, describe for you.—Sometimes I will leave blanks for you to supply ; which you can do, by looking on your map.*

Vermont is bounded N. by Lower Canada ; E. by ——— river, which separates it from the state of ——— ; S. by Massachusetts ; W. by the state of N. York, from which it is in part separated by lake ———. Connecticut is bounded N. by Massachusetts ; E. by ——— ; S. by ——— sound ; and W. by the state of ———. Rhode Island is bounded N. and E. by the state of ——— ; S. by ——— ocean ; W. by ———.

* It would be a good plan for children who read in classes, to be obliged, after sufficient study, to read these passages and fill the blanks as they go along, on penalty of going down in their classes.

LESSON SIXTH.

BOUNDARIES OF THE SEVERAL UNITED STATES CONTINUED.

Proceed now to bound the Middle States, which are New York, New Jersey, Pennsylvania, and Delaware. New York is bounded N. by Lower Canada; E. by three states; what are they? S. by two states; name them.—W. and North-west by Pennsylvania, Lake Erie, Niagara River, Lake Ontario, and the St. Lawrence River, which separates it from Upper Canada.

This boundary is irregular, and difficult to describe. You may perceive from this example how essential is the knowledge of maps to the science of geography. Words could not give you a correct and clear idea of this state, or of any other of very irregular shape; but maps may. In describing the boundary of N. York, we might say, it is bounded N. by the Lakes Erie, Ontario, and the St. Lawrence River, instead of giving these as a N. West boundary. You will find many such cases, where you will be at a loss; but you must not let this at all discourage you. The greatest geographers find the same difficulty, and often do not exactly agree with each other. Describe as correctly as you can, and I shall be satisfied.

Give the boundary of N. Jersey; of Pennsylvania; of Delaware. Next describe the boundaries of the Southern States, which are, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, and Alabama. I think you will find no difficulty in describing any of these boundaries, except that of S. Carolina; which perhaps cannot be better described than by saying it is bounded N. and N. E. by North Carolina; S. E. by the Atlantic Ocean;

S. W. by Savannah River, which separates it from Georgia.

Now give a description of the boundaries of the Western States ; which are Ohio, Indiana, Illinois, Kentucky, Tennessee, Mississippi, Louisiana, Missouri.

It is very difficult to give a good description, in words, of the boundary of Louisiana. Perhaps we cannot describe it better than to say it is bounded N. by the Arkansaw territory ; E. by the Mississippi River, which separates it from the state of Mississippi, (except a portion of its S. E. corner, which extends east of the river, into the state of Mississippi :) S. by the Gulf of Mexico ; W. by the Sabine River, which separates it from Mexico. I am not certain however, that this is the best possible description.— Perhaps if you consider the case well you will discover a better one.

You may now give the boundaries of the grand divisions. I think you will find no difficulty in bounding the Eastern, Middle and Southern States, but your maps will not enable you to give the Western boundary of the Western States ; if we consider the whole of the possessions of the United States west of the other grand divisions, as being ranked under the general head of Western States.

LESSON SEVENTH.

SITUATION OF THE SEVERAL UNITED STATES.

Mother. I shall now commence a different method of questioning. Instead of asking you how a state is bounded, I shall ask you where it is, or how it is situated. Suppose I ask you, where is Connecticut ?

It will be proper in this case for you to tell me in what direction Connecticut lies from the States, &c. around it; thus, Connecticut is S. of Massachusetts; W. of Rhode Island; N. of Long Island Sound; and E. of New York. This method of telling where a place is, has sometimes an advantage over that of describing its boundaries, and the same minuteness and exactness are not required. For instance, if I ask where is Florida, you might, if you chose, proceed as I did in telling you where Connecticut is, and mention its direction from all the places around it, but you may also merely say that Florida is a peninsula at the southern extremity of the U. States, which is telling its direction only from one important place, and it gives a better idea of its situation than would be given by a description of the boundary.

Where is New England? New England is the N. Eastern portion of the United States. It lies S. of Lower Canada; W. of the Atlantic Ocean; and E. of the state of New-York.

Where are the Middle States? They lie South of Canada; W. of New England and the Atlantic; N. of the Southern States; and E. of the western.

Where are the Southern States? where the western? where is the Arkansaw Territory? the Northwestern Territory? Michigan Territory?

Where is Vermont? Ohio? Georgia? Delaware? Tennessee? Rhode Island?*

In these last questions I have taken you from one part of the map to another, without any regularity; which I think an excellent exercise, after you have once learned your lessons in a regular way.

I will now give you another exercise on this plan,

* These questions are merely intended as specimens of the mode of questioning. The teacher can supply as many of the kind as he chooses.

which you will find easy, as you have learned thoroughly thus far. In what direction is Connecticut from Vermont? Virginia from Georgia? North Carolina from Pennsylvania? Alabama from Michigan Territory: Ohio from Connecticut?

LESSON EIGHTH.

RIVERS AND MOUNTAINS.

We will here commence with the rivers and mountains, which, although they are unlike, are yet quite nearly related.

Frank. I have often stood on the bank of our pleasant brook, and wondered to see that, although the ground appears perfectly level, it winds and glides swiftly along the meadow, like a living creature. But yet this water, which runs so fast while in the brook, if I take it out into a cup, is as still as any other.

Mother. But suppose you were to pour the water on the side of a hill, it would run again; and although there were some little spots where the side hill was level, or even a little ascending, still the force it would have after it got in motion, would enable it to keep running. On the same principle, the water in brooks and rivers runs because it goes down hill. Rivers take their rise in high lands and flow towards the lower parts; and although the country may appear level to the eye where there is a running stream, and indeed, in some small parts, may be level, or a little ascending, yet there is always a general descent towards that quarter to which the water goes. Travellers, who are going up a stream, know that they shall be obliged to travel up hill more

than down. Of course, the country where a river takes its rise, must be higher than that through which it flows. It is generally the case, that the longer the river, the higher the land from which it begins its course; so that the greatest rivers usually take their rise in the highest mountains.

Running streams generally issue from springs among mountains. Where they begin their course, they are mere rills or brooks; but when many of them meet, their united waters swell to a river. A river continues to flow until it reaches the ocean, or some large division of water, where it is said to *discharge* its waters, and the place where it meets the sea, is called its *mouth*. The course of a river is the same as the point of compass towards which it flows. Thus Connecticut River, which comes from the north, and runs towards the south, is said to run a southerly course. Young persons are sometimes at a loss on the subject, because a wind that comes from the north, and blows towards the south, is called a north wind.

If no mountains were delineated on our map, you might now form a judgment where the principal range must be, from noticing where the greatest number of rivers take their rise.

Mountains, as you know, are large elevations of land, but they sometimes rise to a height of which, in this country, we have little idea. They generally range along through a considerable extent of country in chains or ridges, but they are sometimes found single.

The principal range of mountains in the United States is the Apalachian. This traverses nearly their whole extent; or, as the White Mountains in New Hampshire, and the Green Mountains in Vermont are considered as branches of the grand Apa-

lachian chain, it may be considered as traversing the whole extent of the United States, from north-east to south-west, keeping nearly parallel to the sea coast, and giving rise to the streams which flow south and south-easterly into the Atlantic, and also to those which flow south-westerly into the Mississippi.

There are several ridges belonging to this chain, the principal of which is the Allegany, and on that account this name is sometimes given to the whole chain. The Allegany mountains I want you to be very particular in remembering, for reasons which I shall afterwards explain. They run through Virginia and Pennsylvania, and are continued by a range of highlands, till they terminate in the Catskill mountains, west of Hudson River. They are nine hundred miles in length.

Frank. Nine hundred miles! That is a great ways. How many days would it take us to travel nine hundred miles?

Mother. Why, if we should travel over a mountainous country, we must of necessity go rather slowly. If we travelled thirty-three miles and one third in a day, that would be one hundred miles in three days, and I think you can now reckon yourself how many days it would take us to travel nine hundred.

The other most remarkable ridges which compose the great Apalachian chain, are the Green Mountains, which are principally in Vermont, but which are considered as commencing in the southern part of Connecticut. They are about one third as long as the Allegany chain,—how long is that?

The White Mountains are mostly in New Hampshire. What two ranges of mountains unite with the Allegany from Tennessee? What ridge between it and the sea coast, in Virginia?

There is another circumstance besides the length of the chain, which I wish you to notice, in speak-

ing of mountains. This is the height to which they rise. Their highest points are called peaks. Mount Washington is the highest peak in the United States, and is a part of the White Mountains. It is 6,634 feet in height. This is about a mile and a quarter.

Frank. That must be very high : the mountain north-east of us, my father said was six hundred feet high. I was so fatigued in climbing it, that I thought I should never reach the top. But this Mount Washington is a great deal higher.

Mother. There is eleven times six hundred in six thousand six hundred ; so that it would take eleven such mountains as ours, one piled upon the other, to make a mountain as high as Mount Washington, and that is not half as high as some mountains in the world.

The other principal peaks in the United States, are Mansfield, in the north-west part of Vermont ; Saddle Mountain, in the north-west part of Massachusetts ; Round Top, among the Catskill mountains ; and Table Mountain, in the north-west corner of South Carolina. These are all about four thousand feet high.

When I direct you to describe the situation of a chain of mountains, I expect you to tell in what direction it extends ; what countries or states it traverses, and what parts of those countries ; and when you wish to be very particular, you may tell to what rivers it gives rise. For example, the Green Mountains extend through the middle of Vermont, from north to south, and give rise to many small rivers : a part of which flow E. into Connecticut River, and a part flow W. into Lake Champlain.

Now attempt a more particular description of the Apalachian chain.

LESSON NINTH.

RIVERS IN THE UNITED STATES.

Mother. To describe a river, first observe where it rises, then what course it runs, and lastly, where it discharges its waters. Take notice if it separates states, or runs through different ones.

Penobscot river rises in the northern part of Maine, runs southerly, and flows into the Atlantic. Describe the Kennebeck.

The Merrimack rises in the White Mountains near the centre of N. Hampshire, runs S. into Massachusetts, then changes its course, runs E. and discharges its waters into the Atlantic.

The Connecticut, which you see is the largest river in New England, rises in the mountains between Canada and the United States, runs S., separates the states of —— and —— flows through the states of —— and ——, and falls into Long Island Sound.

Hudson River rises near Lake ——, in the state of ——, runs S. and empties into the Ocean, at the west end of —— sound. Delaware River rises in the southern part of N. York, runs S. and separates —— from ——, and falls into —— Bay. The Susquehannah rises in the southern part of N. York, runs a southerly course through Pennsylvania, and falls into the head of Chesapeake Bay, in the northern part of the state of Maryland.

These descriptions, although as accurate as any short description that can be given, are yet, as you will perceive by comparing them with your maps, very incomplete ; and this must be the case, as I before mentioned, with all attempts to describe such subjects in words ; and shows you the necessity of understanding your maps if you would obtain an ac-

curate knowledge of geography. To explain this more clearly, suppose you take the description we have given of the Susquehannah River, and compare it with your map. We said it ran a southerly course through the state of Pennsylvania. Now if you were to draw the river from this description, you would naturally make a straight line from north to south ; but how very different would that be from the real course of this river. If we should add to our description that it is a crooked river, this would not remedy the difficulty, because we should not then know whether the bends were large or small ones, or what were their directions. If we should still go on endeavoring to mend our description by giving an account of all the particular bends of the river, it would make it very long, and persons would be apt to find themselves confused with many particulars, and thus not get any clear ideas. Besides, you perceive that by looking at the delineation of the river on the map, you not only see all these particulars at a glance of the eye, but many more ; such as whether it is in the eastern, or western, or the middle part of the state, &c.

These remarks, although applied to the Susquehannah, are applicable to all others. You will, therefore, now attend to your maps patiently and diligently, and not be discouraged if you cannot always make your descriptions exactly to please you, as you see that I am sometimes troubled in the same way myself. But we must learn to discourse about the things we know. The only way is to learn things as they are, then describe them as well as the nature of the subject, and our own powers will admit.

I have now shown you the general manner of describing rivers. There are, however, other circumstances which you can, if you choose, add to your description, such as the names of the branches, the

directions in which they flow : and also where they separate states, in what directions the states lie, &c.

The Potomac rises in the Allegany mountains, runs a north-easterly course, receives the Shenandoah from the south, passes through the Blue Ridge, changes its course and flows south-easterly into Chesapeake Bay, separating Maryland on the north from Virginia on the south. Describe the James River—the Roanoke, the Cape Fear—Santee—Pedee—Savannah—Altamaha—St. Mary's—Apalachicola.

The Mobile is formed by the union or junction of two large streams, the Alabama, which runs south-west, and the Tombigbee, which runs south,—it then flows south, and falls into Mobile Bay. Describe Pearl River.

The great Mississippi, the majestic “Father of Rivers,” (as the name signifies in the language of the Indians, who formerly inhabited its shores,) was the boundary of the United States, before the large country west of it was purchased from France. It takes its rise in a number of small lakes west of Lake Superior ; flows south, and discharges its waters into the Gulf of — ; on its eastern shore are the North-West Territory, and the states of — and — ; on its western shore is the state of Louisiana, the Territory of Arkansas, state of Missouri, and Missouri Territory, which extends far to the west. Name the principal rivers which it receives from the east.—Those from the west.—Give a particular description of the Ohio River—Tennessee—Cumberland—Wabash—Kaskaskias — Illinois—Wisconsin—St. Lawrence,

LESSON TENTH.

RIVERS IN THE UNITED STATES CONTINUED.

Mother. For your lesson to-day, I shall give you another exercise on the rivers of the United States. I wish to familiarize you with the subject, and accustom you to different modes of expression. If you understand the things which you study, you will find it as easy to communicate your knowledge in one manner as another.

What are the principal rivers of Maine? Of N. Hampshire? Here you might hesitate, because the Connecticut and Merrimack are in other states likewise, but their being the principal rivers in other states, does not make them the less so in this.—What are the principal rivers of Massachusetts? Connecticut? Vermont? New-York? Pennsylvania? Virginia? N. Carolina? S. Carolina? Georgia?

What state is watered by the Mobile and its branches? What states are watered by the northern branches of the Ohio? What state is watered by the Tennessee and Cumberland? What are the principal rivers of Kentucky? Ohio? Missouri? Mississippi?

Where is the Penobscot River? If I put the question in this form, you may say it is in Maine. Where is the Connecticut? It forms the boundary of ——— and ———, runs through the states of ———, and discharges its waters into ——— sound. Where is the Savannah River?

Now draw the second map of the United States, placing the mountains and rivers upon it, observing their direction from the crossing lines, as I instructed you in a former lesson. You need not set down their names, but you may point to the rivers, tell their names, and describe their course; and to the

mountains, and tell in what direction they extend, what states or countries they traverse ; their length, height, and principal peaks. When you wish to be very particular, you may mention to what rivers they give rise.

You have now described all the largest rivers of the United States, but you must recollect that our map is very small, and of course that but few of the most important objects can be placed upon it. Besides those delineated, there are hundreds of other very considerable rivers which fall into the Atlantic Ocean, the Gulf of Mexico, the lakes, or the large rivers ; and thousands of beautiful streams, and millions of brooks, and rills, which not only afford seats for manufactories and mills, but give beauty to the landscape, and fertility to the soil. No doubt they are of as much profit and pleasure to the inhabitants who live upon their banks, as the stream which flows through our meadows is to us ; and I dare say the children near them, delight to make them the seat of their sports, as much as you do to play about our pleasant brook.

Now if you understand a map, you will take pleasure in extending the knowledge which you have derived from these little ones, by examining those which are larger.

LESSON ELEVENTH.

COMPARATIVE LENGTH OF THE RIVERS IN THE UNITED STATES.

Frank. How very long some of these rivers must be. I can see by the map, that many of them are

much longer than the Connecticut River, and the length of that is so great, that when we travelled along its banks from Long Island Sound, to visit our friends in the north of Vermont, we were several days in making our journey.

Mother. Yes. We travelled fifty miles a day, and if we had gone quite from its mouth to its source, it would have taken us eight days to perform our journey, for this river is 400 miles in length,* and that, you know, is eight times fifty miles. I have prepared your maps in a manner to show you the length of the other rivers compared with Connecticut River. We will call this our *unit* or *measure river*, and mark it 1. All other rivers of the same length are marked 1 also. If they are a little more, I have annexed to the figure, this mark, (-|-) which signifies *plus*, or more—if a little less, this mark, (—) which signifies *minus*, or less.

If a river is twice the length of the Connecticut, it is marked 2, if three times, 3, &c.—Those less are marked $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$, &c., which signifies that it would take two, three, or four of such rivers to make one as long as the Connecticut.

By this method you can compare the length of any two rivers together. Suppose you find one marked 2, and another 4, you know that the one marked 4, is twice the size of that marked 2. You would know that a river marked $\frac{1}{6}$, was only half as long as one marked $\frac{1}{3}$, because it would take 6 of the first to make one as long as the Connecticut, but only 3 of the last.

If you wish to know all the rivers which are of

* Geographers give the length of this river 410 miles, but as it is on some accounts, a better river to use as a measure, than any other in the United States, its length is assumed as 400, for the convenience of reckoning.

the same length, these numbers show you; as all marked alike, are alike in length.

You can also determine the real length of any river; for you can tell easily what twice or three times 400 is, or how much is $\frac{1}{4}$, or $\frac{1}{6}$, of that number; and as you have been very good to learn Arithmetic, I think you can make me a table of the real length of the rivers, and it will be an excellent exercise in arithmetic, as well as in geography. In making it, set down the largest rivers first, and so on, in their order. If, however, you do not understand enough of arithmetic, you must apply yourself with great diligence to that very important study, and you will then soon be able to accomplish what I desire.

Now commence with Maine, and trace the coast once more for the rivers, so as to learn their comparative length. How do those rivers of the U. States, whose mouths are east and north of Connecticut River, compare with it in size? Those whose mouths are between Connecticut River and Chesapeake Bay? Those which fall into Chesapeake Bay? Those south of Chesapeake Bay? Those which fall into the gulf of Mexico? The eastern branches of the Mississippi? The western? The branches of the Ohio? Of the St. Lawrence?

LESSON TWELFTH.

LAKES AND ISLANDS IN THE UNITED STATES—BRITISH PROVINCES IN AMERICA.

Mother. The chain of lakes delineated on this map, are the most remarkable of any in the world. Lake Superior, you perceive, is the largest, and the

most northerly. Which two are the next? By what strait is Lake Superior connected with Lake Huron? Lake Huron with Lake Michigan? Lake Huron with Lake St. Clair? Lake St. Clair with Lake Erie? Lake Erie with Lake Ontario? By what great river does Lake Ontario communicate with the ocean?

When a river takes its rise in a lake, or flows from it, the lake is said to be its *head waters*, and the river is said to be the *outlet* of the Lake. Lake Superior is the *head waters* of the St. Lawrence. The St. Lawrence is the *outlet* of the whole great chain of Lakes.

Where is Lake Champlain? What small lake communicates with it on the S. W.?

Where is Lake Ponchartrain?

Now give me a description of the great chain of lakes, beginning with Lake Superior—tell their names, and the straits which connect them.

What island lies S. of Connecticut? What islands lie S. E. of Massachusetts? The island on which Newport is situated, is called Rhode Island, and gives name to the state. The islands along the coast of North Carolina are mere sand-banks, and are a disadvantage to the state, because ships cannot approach the coast. The small islands along the coast of South Carolina and Georgia are very fertile; they produce that kind of cotton called *Sea Island* cotton, which has been esteemed the best in the world.

Although it is out of place in my little plan of instruction, I will here give you some questions on the countries north of the United States; because they are better answered from this map, than any other in my collection. They are so near to us, that we ought to be well acquainted with their geography.

Lower Canada is the most important of these

countries. Describe its situation. The southern part of Upper Canada is a peninsula. What waters nearly enclose it? Describe Nova Scotia, as to its form and situation. Where is New Brunswick?

A part of the large island of Newfoundland, and also of the island of Anticosti, is on this map. You can better learn their situation from the map of the world. What large Gulf lies between the island of Newfoundland and New Brunswick? What large bay lies between Nova Scotia and New Brunswick? What are the principal northern branches of the St. Lawrence? The principal southern?

LESSON THIRTEENTH.

PART I.

PRINCIPAL CITIES AND TOWNS IN THE UNITED STATES.*

Mother. I now give you another map of the United States, from which you are to learn the situation of the principal cities and towns.

A *city* is a large collection of houses, and inhabitants. A single city has often more people, than a large tract of country. For instance, the city of New York, which is but about three miles long, contains more inhabitants, than the whole state of Alabama, and as human beings are more important than mere uninhabited land, the city of New York is a more important subject of study for us than the state of Alabama; particularly as we are not inhabitants of that state.

Cities are important also on account of their being the places where the legislatures of the states, or

* See third Map.

countries meet to make the laws, by which the people are governed. A city where the legislature thus meets, is called the *metropolis* or *capital* of the state or country for which the laws are there made. On your map the capitals are distinguished thus, (□).

In countries governed by a king or emperor, the capital is generally the largest city in the country ; because the largest cities afford the most sources of amusement. But in our happy country, we choose at our *elections*, or *freemen's meetings*, persons from among ourselves, who will make and execute such laws as will be for our good, and who are more desirous to find a convenient place to assemble, than one where they can be amused. Hence the capitals of the states are generally near the centres ; and are not necessarily the largest cities. Sometimes the legislature of a state assembles alternately in two different places. In that case these two places are both capitals. In Connecticut the legislature meets in alternate years at New Haven, and Hartford.

As a number of families make a town, a number of towns a county, and a number of counties a state ; so, in our country, a number of states form one general government, and there is a place where the legislature (called the *Congress*,) meets, to make laws for the whole United States.

Besides private dwellings, cities contain public buildings, for the purposes of government, religious worship, &c. Capitals contain large buildings, where the legislatures meet. The building called the *capitol*, is the place in Washington used for this purpose, by Congress. The legislatures of the several states, meet in buildings, called *state-houses*. You have seen the state-house at Hartford, and the one in Albany.



State House at Hartford.

New-York is the largest city in the United States. It contains 167,000 inhabitants, which is $\frac{1}{6}$ of a million. That is a great number. When Mr. S. preached here, there were 1000 people collected to hear him. They could not all get into the meeting house, but stood about the doors and windows, and when they dispersed, the village seemed alive with them. It would take nearly 170 times as many to make them equal in number to the inhabitants of New-York. You have been in Troy and in Hartford. It would take 20 cities of the size of either of these, to make one as large as New-York.

You may now merely learn the names, and situations of the cities and towns. I will soon give you a table from which you will learn their comparative sizes.

What is the capital of Maine? Portland, in the south part of the state, on the waters of the Atlantic. When you study a large map, you will find that Portland is situated on Casco Bay, which is too small to be distinguished on this map. But Casco Bay, be-

ing a part of the Atlantic, the answer dictated is not improper. Such cases often occur.

What is the capital of New-Hampshire? Concord, on the Merrimack River. What is the capital of Massachusetts? Boston, in the east part of the state, on the waters of the Atlantic. What are the capitals of Connecticut? This state has two capitals; —, on the waters of the Atlantic, and —, on — river. In the same manner learn the capitals of each state.

Next learn the situation of the other towns and cities in each state. What are the principal towns in Maine, besides Portland, the capital? They are Machias, Eastport and Castine, on the waters of the Atlantic, Bangor, on the Penobscot River, and Brunswick on the Androscoggin.

LESSON THIRTEENTH.

PART II.

Mother. Having now learned the cities and towns of each state in this manner, I shall give a table of the largest in the United States compared with New York. From this table you can readily calculate the number of inhabitants. But the inhabitants are not generally numbered oftener than once in ten years, and it is now nine years since the census, (as this numbering is called,) was taken, and many of these places have increased very much in their population.

Philadelphia contains about three-fourths the number of inhabitants of New-York.

Baltimore,	Hartford,	SMALL TOWNS.
Boston,	Troy,	Louisville,
New Orleans,	Portsmouth,	St. Louis,
Charleston,	Nantucket,	Augusta,
Washington,	Petersburg,	New London,
Albany,	Newburyport,	Nashville,
Salem,	Lancaster,	Columbia,
Richmond,	Brunswick,	Milledgeville,
Providence,	Newbern,	Pensacola,
Cincinnati,	Fredericktown,	Norwich,
Portland,	Lynchburg,	Raleigh,
Alexandria,	Lexington,	Wilmington, N. C.
Newark,	Wilmington, Del.	Mobile,
Newport,	Hudson,	Chillicothe,
Savannah,	St. Augustine,	Natchez,
Georgetown,		Knoxville.
New Haven,		
Pittsburg,		

 $\frac{1}{3}$
 $\frac{1}{4}$
 $\frac{1}{6}$
 $\frac{1}{10}$
 $\frac{1}{20}$
 $\frac{1}{20}$
 $\frac{1}{30}$
 $\frac{1}{40}$

In the United States, great attention is paid to the education of youth. You know that there are several school houses in every town ; that has never been at school, or that is unable to read and write, is considered as a disgraceful and pitiful spectacle.

Frank. I have often thought it was very strange to our fathers to take so much care to have schools and school teachers for us children, who do nothing for ourselves ; and that we ought to be diligent. My father often goes in the evening to school meetings, although he is much fatigued. Do all the men in the town meet ?

Mother. Not at the same school meeting. Our towns in New England, as we have seen in our little maps, are divided into parishes, and the parishes are divided into school districts, each of which has a school house, and hires a man to keep school in the winter, and a woman in the summer. I am told that in some schools they are changing this system, considering it important to have the same person keep the school the whole year. The western states, which have been settled from New England, have much the same customs with regard to education ; but it is not so much attended to in other parts of the United States.

Frank. Is a college much larger than our academy at C. ; and do they have academies in every town ?

Mother. Academies are quite frequent, but by no means in every town. Seminaries of a higher grade than common schools, are also kept in many places for girls. As for colleges, they are generally twice or three times the length of our academy, which is fifty feet long, and in some there are several buildings, as you see in this drawing of Yale College at New Haven.



View of Yale College.

There is no other college, however, in the United States so important, except Harvard College, at Cambridge near Boston.

Frank. But why is a college a better place to get an education, than an academy ?

Mother. Colleges are suitable for young men, academies for boys. Boys want to be watched over by a master ; young men generally have steadiness enough to keep themselves employed, and they want retired rooms to study their lessons, which often relate to difficult subjects, and require hard thinking. Hence the buildings must be large, as only two or three can occupy the same room, and the different classes also go to separate rooms to recite, and have different teachers. So that instead of one or two teachers, as they have in our academy, they have eight or ten in a college, who are called professors or tutors. At Cambridge they have twenty, and at Yale College they have nearly as many. These teachers do not hear classes all the day, but they read a great many books on the subjects which they teach, so that when they do instruct, they can ex-

plain the subjects which they study, to the young gentlemen.

Frank. But where do they get their books ?

Mother. They have great collections of books in the libraries, with which each college is furnished. You would be astonished to see the library at Cambridge. We have in our collection five hundred books, which our neighbors think is quite large ; but there they have fifty times five hundred, that is, twenty-five thousand. This is, however, a larger library than is in any other college in the U. States. Colleges are also furnished with many things which the professors show the young gentlemen, to make them understand their studies ; as, for instance, air pumps and electrical machines. These things are called the college apparatus.

When a city or village has a college in it, this character (*) is placed near its name on the map. What are the places in the United States which contain colleges ?

You may now draw the third map, on which you will have not only the rivers and mountains, but the cities and towns. For those which are not capitals, you may draw a small circle where the town is situated, without writing the name. When you bring your map to recitation, you may first point to the capital of each state, and tell me its name, situation, and number of inhabitants, compared with New-York. Then commencing with Maine, name the towns in each state in the same manner, and also which of the cities are about the same size. Be particular, also to mention those which have colleges in them.

LESSON FOURTEENTH.

ROADS, CANALS, &c.

Mother. Describe the road from Boston to Burlington, in Vermont? It passes N. W. through the N. E. part of Massachusetts, thence northerly, through the central parts of New Hampshire, where it passes through Concord, the capital, then crosses Connecticut River at Haverhill, and bending to the W., passes over the Green Mountains, among which the traveller finds Montpelier, the capital of Vermont. Thence it takes a west course to Burlington.

This is a tolerably minute description of a road to make from a map. Had you been a dull scholar, I should not have required you to learn so much, but only to tell the direction of the road, and states and cities through which it passes; and now, if you are disposed to distinguish yourself as a remarkably good scholar, you may learn it still more minutely; as for instance, you may say that after this road enters New-Hampshire, it keeps along the Merrimack; and, that after passing Montpelier, it goes along the Onion River to Burlington. In schools where maps are studied, the poor scholars get their answers just so that they will pass, the good scholars give full and distinct answers, and the very good scholars delight in learning every thing that is to be learned.

If we lived near Burlington, I should have told you to describe the road from Burlington to Boston, rather than from Boston to Burlington.

Describe the road from Portland to Boston.

Divisions of the great road extending nearly parallel to the sea-coast from Portland to New Orleans.	{	from Boston to New-York. from New-York to Washington. from Washington to Raleigh. from Raleigh to Milledgeville. from Milledgeville to N. Orleans.
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Give an account of the road from Albany to Buffalo—from Erie to Detroit, round the southern part of Lake Erie—from New Haven to Hanover, in New Hampshire.

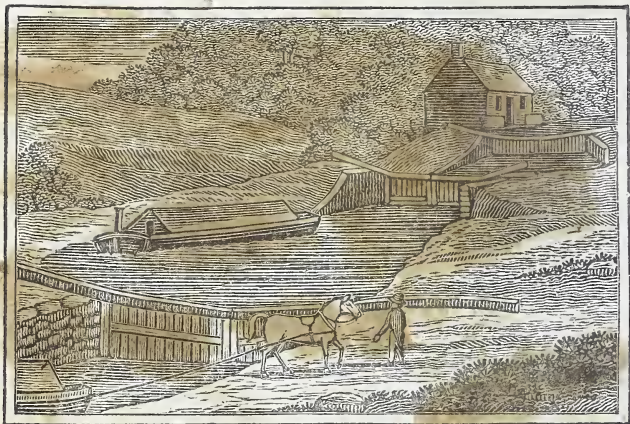
Roads across the Allegany Mountains.	{	from Philadelphia to Pittsburg. from Philadelphia to Knoxville. from Pittsburg to Lexington. from Augusta to Nashville.
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You may take a strip of paper, and tell me by your scale of miles, the distances of some of these places from each other. How far is it from Portland to Boston? From Boston to New-York? From New-York to Washington? From Washington to Raleigh? Raleigh to Milledgeville? Milledgeville to N. Orleans? What is the distance from Portland to N. Orleans? Boston to Washington? N. Orleans to Washington. You may find the distances on the other roads which are described, in the same manner.

Canals are artificial passages for water, which are made at great expense for boat navigation. There are some short canals, sufficiently broad and deep for ships. The most important canal in the United States, and perhaps in the world, is the *Grand Western Canal*. In what state is this canal? It is in the state of ——. It connects the waters of Lake ——— with those of ——— river. Another canal, called the *Northern Canal*, in the same state, connects the waters of Lake Champlain with those of the Hudson River. There are also several other canals in the U. States.

A canal appears like a narrow straight river, except where there are *locks*. A path is made close to one of its banks, which is called a *tow-path*. There the horse moves, which drags, or *tows* the boat. It is as easy for him to drag along a large boat filled with heavy articles, as it would be to carry a very small part of them; so that canals are

of great utility. *Locks* are made, where, from the situation of the ground there must be a descent of the water ; and by means of them the boats can be raised or lowered.



Views of Canals.

A very remarkable range of lakes lies south of the Grand Canal. Some of them are about 40 miles in length. They are beautiful sheets of water, and give a picturesque appearance to the country.

The most important *mineral springs* in the United States are in New-York, at Ballstown, and Saratoga. In what part of the state are these places ?

There is a large *swamp*, or marsh, in ———, called the Dismal Swamp ; another in ———, called Okefonaco.

LESSON FIFTEENTH.

COMPARATIVE SIZE OF THE UNITED STATES, AND
PRINCIPAL PRODUCTIONS.

Mother. The numbers placed near the name of each state relate to the size of the state, and have the same reference to the whole territory of the United States as the numbers placed near the rivers have to Connecticut River.

The whole United States, then, is our *unit* or *measure country*; our maps, however, do not show the whole of the vast country to which we belong. You will see when we come to the map of the world, that it extends a greater distance west of the Mississippi than it does east; but this western region has not an equal length from north to south. With this vast country we compare its various parts, as well as the other countries of the world. The separate states being parts of it, are of course, all smaller, and many of them very much smaller than the whole of the extensive country belonging to our government. It would take a thousand states of the size of Delaware to make a country as large as the whole United States; and 357 of the size of Massachusetts. Now look on your map and tell me how many states as large as Virginia would make the whole United States. Give the comparative size of New-York. What other states are of the same size? What is the comparative size of Georgia? What other states are of the same size? How many states as large as North Carolina would make the whole territory of the United States? What is the comparative size of South Carolina? Of Tennessee—of Kentucky—Ohio—Indiana—Illinois—Michigan? Which is the smallest state, and what its comparative size?

What is that of Connecticut? How many states as large as this state would make one of your measure country? What is the comparative size of Maine? of New Hampshire? Of Vermont?

Now make me a table of the states, setting them down in their order, from greatest to least; and if your knowledge of arithmetic is sufficient, calculate their real number of square miles by comparing them with that of the United States, which contains 2,500,000.

The United States embracing so vast a tract of country, and extending through climates so various, must, of course, be greatly diversified in the productions of the soil. On the second map of the United States, the principal productions of the various states are marked. What are those of the Eastern States? What are those of the Middle? What of the Southern? What of the Western? What states abound most in wheat? What in pasturage? What in tobacco? What in Indian corn? Of what states is cotton the staple product? Of what states is rice the staple product?

EUROPE.

LESSON SIXTEENTH.

SEAS, CAPES, STRAITS, &c.

Mother. You have now a tolerably good idea of the divisions of land and water, and of the important places of our own country. I shall next take you eastward, 3000 miles across the Atlantic, to visit Europe, the land of your forefathers.

Europe is more interesting to us than any other part of the world except our own country, because as our forefathers came from there, our language, learning, manners, and customs are derived from Europeans. We have more intercourse with them in various ways than with any other people. We purchase more things of them, and sell more things to them. Our books come from Europe, and our newspapers are almost half filled with accounts of European affairs. We cannot, therefore, understand the books put into our hands, nor even a newspaper, without knowing the geography of Europe.

Here is a little map of Europe, made easy to draw, as I wish you to commence drawing Europe at the same time that you begin studying it. Proceed in the manner directed, while you were drawing the map of the United States. If you can learn the boundaries of the countries more easily from this small map than from the larger one, you may use it; but as you are now accustomed in some measure to study from maps, you will not find yourself confused by different objects, as at first, and I presume you can use the larger one without any difficulty.

Europe is bounded N. by the — Ocean; E. by the — mountains, the river —, the sea of Azof, the — sea, the sea of Marmora, and the Archipelago; S. by the Mediterranean Sea; and W. by the — Ocean.

What seas and gulfs are connected with the Mediterranean, south of Europe? The sea of Azof, which is connected by the straits of — to the Black Sea; the Black Sea, which is connected to the little sea of — on the south by the straits of —; and this small sea is connected by the straits of — to the Archipelago, a large bay which puts up from the Mediterranean.

Following the coast, the next is the Gulf of —,

between Italy and Turkey. South of the north-western part of Italy is the gulf of —; and south of France the Gulf of —.

Which is the most northern cape of Europe? Where is Cape Naze? Cape Clear? Land's End, and Lizard's Point? What is the most northerly cape of France? Of Spain? What cape is north-west of Spain? What is south-west of Portugal? What is the most southerly cape of Spain? What cape is south of Italy? What south of Sicily? Which is the most southerly cape of Europe?

What straits connect the Mediterranean with the Atlantic? What large divisions of water are connected with the Atlantic Ocean, west of Europe? The Bay of —, north of Spain, and west of France. The — channel, between England and France? — channel and the — sea, between England and Ireland? The — sea, east of the island of Great Britain, and the Baltic Sea? What sea is connected with the northern ocean, and in what country is it? What straits connect the British channel with the North Sea?

LESSON SEVENTEENTH.

SITUATION OF COUNTRIES, PENINSULAS, BOUNDARIES,
COMPARATIVE SIZE, &c.

What five *countries* lie on the southern coast, beginning with Turkey? What seven countries lie on the western coast, beginning with Portugal, and tracing northerly? What large country occupies the north-eastern part of Europe? What countries lie around the Baltic.

What two countries at the S. W. of Europe form

a large *peninsula*, nearly surrounded by the Bay of Biscay, the Atlantic, and Mediterranean?

What countries form that large peninsula which has the Atlantic W., and the Baltic and its waters S. and E.? What peninsula is formed by the Mediterranean W. and S., and the Gulf of Venice N. E.? What peninsula lies south of European Russia, being formed by the Black Sea, and the sea of Azof?

What peninsula lies south of Turkey, and what waters lie around it? The peninsula of Jutland is the northern part of Denmark, between the Cattegat E. and the North Sea west; what direction is it from Germany and Sweden? Now tell me which are the principal peninsulas of Europe?

Give the *boundaries* of Turkey; of Italy; Spain; France; Switzerland and Netherlands.

Germany is composed of thirty-nine small states, and is considered as presenting the most puzzling part of Geography. Prussia and a part of Austria with Germany proper, are united in the German Confederation. How is Prussia bounded? Austria? Bound Denmark; Norway; Sweden; Russia.

What seas are around Great Britain? around Ireland? In what direction is France from Prussia? Austria from Great Britain? Germany from Turkey? Switzerland from Spain?

Which is the largest country of Europe, and what proportion does it bear to the whole territory of the United States? What is the comparative size of Germany? Austria? Prussia? What proportion does Turkey bear to your measure country? What other countries of Europe are of the same size? What the comparative size of Norway? How many countries of the size of Italy would make one of the size of the United States? What then is its comparative size? What is the comparative size of France? of the Netherlands? of Denmark? How many

countries of the size of Switzerland would make one of the territory of the United States? What then is its proportion? Give the comparative size of the kingdom of Great Britain? What is the comparative size of England? of Scotland and Ireland?

LESSON EIGHTEENTH.

PART I.

MOUNTAINS, RIVERS, AND LAKES.

Mother. What are the principal *mountains* of Europe?

When you know their names and what countries they traverse, you may learn the length of the ranges, and the height of their principal peaks.

The Ural Mountains are 1500 miles in length. They are called by the ignorant people who live near them, the girdle of the world.

The Dofrafield mountains are 1000 miles in length.

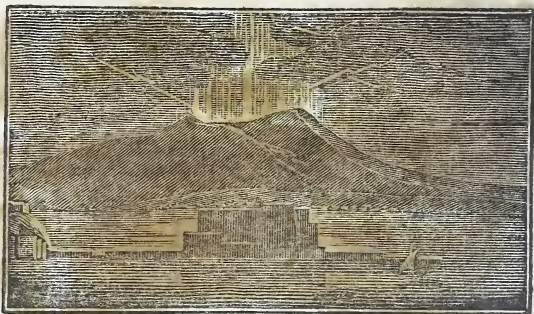
Alps,	}	6 to 700
Appenines,		
Carpathian,		500
Pyrenees,		200

These mountains are much higher than any in our own country. Mount Blanc, the highest mountain in Europe, is nearly three miles high. It is in Switzerland, among the Alps, as is also Mount Rosa, which is nearly as high as Mount Blanc. Mount Perdu, which is the highest of the Pyrenees, is two miles high. St. Bertrand and St. Gothard, peaks of the Alps, are a little more than one mile and a half. The Appenine, Dofrafield and Carpathian, are one mile and a half; Mount Olympus in Greece, one mile and a quarter; Ben Nevis in Scotland, is

nearly one mile ; and Snowdon, in the north-west corner of Wales, about three quarters of a mile in height.

There are wonderful appearances connected with some of the mountains in Europe, and in other parts of the world, that we know nothing of here, except as described by people who have seen them. What would you think, if some evening when you should be looking out upon our mountain, it should suddenly open at the top, and with great roarings and shakings of the earth, burst forth into flames, as if its inward substance had taken fire. Then as if its interior had become red hot melted lead, it should send forth from this tremendous gap at the top, rivers of this melted mass, that at a distance should seem like immense serpents of fire rolling and bounding along the mountain, and destroying every tree and house, every beast, child, and man, in its way. You seem amazed, but what I have described really exists. It is a *volcano*, or *burning mountain*, at the time of its eruption.

These mountains are mostly noiseless, though continually sending up smoke, and presenting in the evening a red appearance, as if there was fire within ; and this the traveller can see when he looks into the awful gap at the top, which is called the *crater*. But at some times they burst forth in the manner I have described ; which, as I told you, is called an eruption. The consternation of the people near is then dreadful, and well it may be, for houses are often shaken down, and whole cities have been covered over by these rivers of melted sand and metals, which when cold, are a solid dark colored mass called *lava*.



Mount Vesuvius.

The three most distinguished volcanic mountains in Europe, are Mount Vesuvius, in Italy, near Naples, which is two thirds of a mile in height; Mount Etna, in Sicily, which is two miles; and Mount Hecla, which is far to the north, in Iceland, and whose height is one mile. Besides these, there is the volcano of Stromboli, on the Lipari Isles.

You can now draw your map for the mountains and rivers of Europe, in the same manner as you did the map of the United States, and you will also be able to give me a particular description of them.

What *river* falls into the sea of Azof? What rivers fall into the Black Sea? What are the largest branches of the Danube? What rivers fall into the waters of the Archipelago? What is the largest that falls into the Gulf of Venice? What large river of France is discharged into the Mediterranean? What of Spain? What are the rivers in Spain and Portugal that fall into the Atlantic? What of France that are discharged into the Bay of Biscay? What rivers fall into the North Sea? What into the Baltic south of the Gulf of Riga? What river is discharged into

the Gulf of Riga. What large river of Sweden falls into the waters of the Baltic? What river of Norway falls into the Cattegat? What rivers of Russia fall into the White Sea? What into the Arctic? Which are the principal branches of the Wolga?

You have merely told the names of these rivers. Now give a particular description of each one, and tell me how it compares in size with Connecticut River. Find their length, if your knowledge of arithmetic is sufficient, and arrange them into a table.

The largest *lakes* in Europe are three in Russia, and three in Sweden. What are their names and situation? The lake of Geneva is near a city of the same name. The river Rhone passes through this lake. The river Rhine passes through a lake, also, which is called lake Constance. In what part of Europe are these lakes? There is a range of beautiful lakes lying along in the southern part of Switzerland and the northern of Italy, which are said to resemble, in some respects, those in the western part of the state of New-York. They are, however, more romantic in their situation, because they lie among mountains, whereas those in New-York are situated in a level country.

LESSON EIGHTEENTH.

PART II.

CITIES AND TOWNS OF EUROPE.

Now learn the capitals of each of the countries of Europe, and the other principal cities in the same manner that you did those of the United States. The cities of Europe are much larger than those of our own country. London, which contains the greatest number of inhabitants, has more than 6

times as many as New-York. You can now tell me nearly the number of inhabitants in London. From this table, you can learn that of the other cities.

Paris has 4 times the number.

Constantinople	3	Brussels	$\frac{1}{2}$
Naples	2	Bristol	
Moscow		Genoa	
Petersburg	$1\frac{1}{2}$	Stockholm	
Lisbon		Florence	
Vienna		Nantes	
Amsterdam	1	Oporto	
Madrid		Bologna	
Dublin	$\frac{1}{4}$	Cadiz	
Berlin		Salonica	
Glasgow	$\frac{3}{4}$	Warsaw	$\frac{1}{3}$
Rome		Breslau	
Milan		Antwerp	
Palermo		Lisle	
Barcelona		Ghent	
Hamburg		Munich	
Valencia		Bucharest	
Copenhagen		Verona	
Edinburgh		Plymouth	
Marseilles		Rotterdam	
Venice	$\frac{1}{2}$	Konigsberg	$\frac{1}{4}$
Adrianople		Saragossa	
Liverpool		Malaga	
Lyons		Granada	
Manchester		Leghorn	
Bordeaux		Catanea	
Cork		Dantzic	
Turin		Limerick	
Birmingham		Dresden	
Prague		Sophia	
Rouen		Toulouse	
Seville		Frankfort	

Lemburg	}	$\frac{1}{4}$	Ratisbon	}	$\frac{1}{8}$
Hague			Havre		
Amiens			Wilna		
Cronstadt			Cordova		
Bath			Perth	}	$\frac{1}{10}$
Bremen			Syracuse		
Riga			York		
Trieste			Bergen		
Leeds			Bilboa	}	$\frac{1}{16}$
Newcastle			Inverness		
Odessa	}	$\frac{1}{6}$	St. Ubes		
Cagliari			Carlsrona	}	$\frac{1}{20}$
Aberdeen			Salamanca		
Leipsic			Berne		
Montpelier			Oxford		
Belfast			Zante	}	$\frac{1}{20}$
Clermont			Cambridge		
Messina			Cherson		
Valladolid			Londonderry		
Toulon			Inspruck	}	$\frac{1}{20}$
Carthagena	}	$\frac{1}{8}$	Athens		
Geneva			Gottingen		
Cracow			Drontheim	}	$\frac{1}{40}$
Toledo			Norkoping		
Belgrade			Elsinore		
Hanover			Upsal		
Gottenburg			Fahlun	}	$\frac{1}{40}$
Brest			Christiansand		
Presburg					

It will probably take four or five lessons to learn all these cities perfectly. You will remember that you are to place them on your map, and explain it as you did that of the United States.

LESSON NINETEENTH.

INSTRUCTION ON THE MAP OF THE WORLD.

WRONG IDEAS CORRECTED, BOUNDARIES OF OCEANS,
CONTINENTS, &c.

Mother. We now commence drawing and studying the map of the world, which you would have found difficult, if I had not first made you somewhat familiar with maps, by beginning with those which are easier. The surface of the earth cannot be represented as justly on a map as on a globe; and if it was as convenient, globes would be used altogether.

Suppose that the paper which covers the globe could be taken off, like the peel of an orange. If I cut once round the orange, and then spread out the halves of the peel flat, this would be like the map of the world, as it is here laid down. But before I could make the two halves of the orange peel lie flat, I must stretch the edges and press the middle parts together. Now if we suppose the paper which covers the globe to be elastic, and we could stretch the edges, and press together the middle of each of the halves, this would make it lie flat like the map of the world; but the countries round the edge would be larger, and those in the centre smaller, than they ought to be. This is precisely the defect of such a map; whereas a globe gives the seas and countries in their true proportions to each other. But there are other important reasons for learning the geography of the earth from a globe where it can be obtained rather than from a map. Look on this map near the letter E. which stands for east, there is the island of New Guinea. Now look to the opposite side.

Near the letter W. for west, you find Queen Charlotte's Island. What do you think respecting the distances of these two places?

Frank. Why, it must be a very long way between them. They are as far apart as the east is from the west.

Mother. No. They are very near together. Now look at them on the globe.

Frank. O! now I perceive how it is. It was between these two that we suppose the paper of the map to be divided in peeling it from the globe. Yet it seems as if the places which are most distant on the map must be so in reality; but I will endeavor not to be deceived in this way again.

Mother. No two places can be more distant from each other than half the distance round the globe; that is, half its circumference. If you trace quite round, you come to the same place again. There is, however, one advantage in studying from a map of the world rather than from a globe, or from maps of part of the earth's surface. You have all the countries of the world before you at once. You can see how they all compare in size, and how they all lie, one from another; and this is a very important part of geographical knowledge, which you learn, of course, while you are studying boundaries, towns, rivers, &c. It is partly on this account that I shall not at present give you separate maps of Asia, Africa, and South America.

You perceive that about two thirds of the earth's surface is covered with a vast collection of water, which is called the ocean. The ocean is divided by geographers into five separate oceans; the Atlantic, Pacific, Indian, Northern, or Arctic, and Southern, or Antarctic Oceans.

The most general divisions of land are the Eastern and Western continents, and the islands of Aus-

tralasia and Polynesia. What ocean lies north of the eastern continent? What east? What two south? What one west?

What ocean lies north of the western continent? What east? What south? What west?

In what direction are the islands of Australasia from Asia? Here, as you find many of them on the half of the map where the west is marked, if you had not been instructed to consider the extreme parts of the map as really belonging together, you might be led to think they were far west. But you know that if you saw them on the globe they would appear east from Asia. As many of them are in a southerly direction also, you will be correct in saying the islands of Australasia are east and south-east from Asia. Where are the isles of Polynesia? How is the Atlantic ocean bounded? North by the ——— ocean; east by the ——— continent; south by the ——— ocean; west by the ——— continent. How is the Pacific ocean bounded? How is the Indian? The Indian ocean is bounded N. by Asia; E. by the islands of ———; S. by the ——— ocean; W. by Africa.

Where is the northern ocean; It lies round the north pole, and north of the ——— and ——— continents.

Where is the southern ocean? It lies round the south pole, south of the ——— and ——— continents, and also of the islands of Australasia and Polynesia.

The eastern continent is divided into Europe, Asia, and Africa; and the western into North and South America. Europe, Asia, Africa, and America are sometimes called the four quarters of the world.

What part of the E. continent is called Asia? What part is called Africa? What Europe?

Before you are required to give the boundaries of these countries, you must learn the names of the lar-

gest seas, bays, and gulfs, which lie about their coasts. In describing the boundaries of the whole continent, you should only notice the oceans; but when you bound the larger subdivisions of land, you should mention the larger subdivisions of water.

LESSON TWENTIETH.

LATITUDE EXPLAINED--APPARENT MOTION OF THE SUN.

Mother. I will now commence explaining those lines which are drawn round the earth from east to west. On the globe they are parallel, that is, they constantly keep the same distance from each other, and it is owing to the imperfection of the map, the middle parts being crowded together, that they are not parallel here. These lines are called *parallels of latitude*.

Frank. If I could mount up in the air so high that I could look down upon this round world, could I see these lines marked upon it?

Mother. No. Nor could you see these places which are called the North Pole, and South Pole, or this great circle called the *Equator*, which is drawn round the earth from east to west, and divides it into two equal parts. Yet though these are not really marked on the earth, geographers may not as well take one place as another for the situation of the poles, and the Equator. There are important circumstances arising from the earth's situation in respect to the sun, which distinguish the poles and the equator from other parts of the earth.

The equator is placed by geographers on that part of the earth's surface where the days and nights are

always of equal length, and where the sun is directly over the heads of the inhabitants once in six months.

The first of the two periods of the year in which the sun is directly over the equator, occurs on the 20th of March, and is called the vernal equinox. — The other happens on the 22d of September, and is called the autumnal equinox. At these two seasons the days are equal to the nights, being each twelve hours in length, and the sun rises due east, and sets due west, not only at the equator, but in all parts of the earth.

If you were at the equator at the time of either of the equinoxes, you would see the sun rise in the east, and mount directly upwards. At noon it would shine on the top of your head, and you would cast no shadow at all. From the 20th of March to the 21st of June you would see the sun farther to the North; your shadow at noon, which would fall towards the south would lengthen; and on the 21st of June the sun would be as far north as it ever is; after that it would be coming towards the equator, till on the 22d of September it would exhibit the same appearance as on the 20th of March.

From that time till the 21st of December, the sun goes south from the equator. At this time it is as far south as it ever goes, and then it commences its return, and is over the equator again on the 20th of March. A year is reckoned by one of these circuits of the sun.

The 21st of June, and the 21st of December, are called the summer and winter solstices.

Frank. I do not understand all that you tell me.

Mother. You must think some time on these subjects before they will seem plain to you. Fancy yourself at the equator on the 20th of March, and

try to see with your "mind's eye" the course of the sun during a day. Point your hand to the east, as if you pointed at him while rising. Raise your hand slowly, keeping your arm extended till you point directly over your head. Now it is noon, and you almost feel the sun's hot rays shining directly down upon you. Carry your hand over to the west until you point to the setting sun. You have had a terrible hot day of twelve hours in length, but you may be thankful that you will have a night as long. You could not live at the equator if you had not long nights.

Frank. Now this seems much plainer. How grand it must be to see the sun mount directly upwards. But it would seem still more singular to see him north of us.

Mother. Yes, but all the people who live south of the equator see him in the north, in the same manner as we who live north see him in the south.

When the sun after the 20th of March goes north of the equator he is at noon over the heads of people farther north, that is, nearer us.

Frank. But the sun is never so far north as to be directly over us. How far to the north of the equator does he shine on to the top of people's heads?

Mother. That is in substance a very proper question. But you would express yourself, and understand me better, if you were made acquainted with the meaning of a few words generally used in speaking on these subjects. Instead of asking how far to the north of the equator the sun ever shines on the tops of people's heads, you might ask how far to the north the sun is ever *vertical*, as that means the same thing. The point in the heavens directly above us is called the *zenith*. East, West, North and South, are points in the horizon, and are called its principal or *cardinal points*.

The *horizon* is that line which limits our prospect, and where the heavens seem to meet the surface of the earth. When you study astronomy, you will learn that there is another kind of horizon, but this definition is sufficient for our present purpose. Another line which we must imagine to be drawn in the heavens, is the *meridian*, which passes from north to south through the zenith. When the sun comes to this line it is noon.

The answer to your question, how far to the north of the equator is the sun ever vertical, shall commence our next lesson.

LESSON TWENTY-FIRST.

EXPLANATION OF LATITUDE CONTINUED.

Mother. You perceive this line, which is called the tropic of Cancer. The sun comes so far north as to be vertical to the inhabitants here. The time is the 21st of June, which is called the summer solstice by us, but the winter solstice by the inhabitants of the southern hemisphere.

When he goes south from the equator, he proceeds to the tropic of Capricorn, and is there vertical at our winter, but their summer solstice.

These two tropics then include the only portion of the earth where the sun is ever vertical. Geographers call this the torrid, or burning zone. Now look upon your map, and tell me what are the principal countries and islands which it contains.

As you go from the equator to either pole, the days and nights become more and more unequal.—But all the inhabitants of the earth have day and night once in twenty-four hours, till you get beyond

those parallels of latitude, which are called polar circles. The northern is the Arctic, the southern the Antarctic circle.

Frank. I wish you would make me live at one of the Polar Circles, as you did at the equator. I find the sun alters his track through the heavens so much at different situations from the equator, that I think I should like to take a peep at him from some where near the pole.

Mother. Well suppose yourself to be at the Arctic circle now. Suppose it to be the 20th of March, as we are in the way of beginning our year at that time. See the sun as he rises due east. But he does not mount up the sky as he does here, much less go directly towards the zenith, as he does at the equator. He goes quite near the horizon, and at noon is only about a quarter of the distance from the horizon to the zenith. After the 20th of March he rises farther and farther towards the north, and as you may observe here, he keeps constantly the same slope or obliquity with respect to the horizon, and as he rises farther north he is farther north, or nearer the zenith at noon. But when these circles of daily motion are, as here, very oblique to the horizon, the sun changes the place of his rising and setting very fast. Every morning you can see that he goes nearer and nearer to the north, and every day you will perceive is longer than the day before.— Now look for something that is worth your journey to the arctic circle. It is the 21st of June. The sun is rising in the north. He wheels towards the east, then to the south, comes to the meridian a little more than half way from the horizon to the zenith, then bends his course to the west, and finally completes his sublime circuit at the same point from which he arose. Thus he has wheedled one whole

circuit around the heavens, and the day has been 24 hours in length.

But now this brilliant summer's day has passed. The sun begins to recede from the north, he rises nearer the east, and is farther from the zenith at noon, till on the 22d of September every thing appears as it did on the 20th of March.

After the autumnal equinox the sun rises nearer and nearer to the south, the days grow short very fast, and the sun at noon is but a little distance above the horizon. Now a time is coming that will make you wish yourself at home. The 21st of December is come. Yesterday the sun rose in the south, and was above the horizon a few moments; now it is twelve o'clock, and the twilight is bright in the south, but the pleasant sun will not appear, although we have had a dreary and bitter freezing night of 24 hours. The sun however is now at his greatest southern limit, and will return towards the north, and be, next March, where he was on the March previous.

At the antarctic circle all the same appearances would take place, except that there the sun would be north of the zenith, the same that he is south at the arctic circle. On their long day the sun would rise in the south, wheel through the east towards the zenith, and set in the south again.*

Frank. Well, really mother, you take the sun and whirl him round the heavens to that he dazzles me. You make pictures with words. Whenever

* In teaching such passages, instructors will do well to read them to their classes in the tones and gestures of familiar conversation. When my young pupils have complained that they did not understand their lessons, and wished me to explain them, I have often merely read their books to them in this manner, sometimes perhaps changing a few of the hardest of the words for those more simple, and my reading was received as a satisfactory explanation.

you are at leisure, I hope you will amuse me, by making me live in some new situation.

Mother. But although I make pictures with words, and certainly wish to please you, yet it would be wrong in you because you are amused, to suppose that I do it merely for your gratification. I assure you that to get a clear idea of the appearance of the sun at the different distances from the equator, is not only the most important item of geographical knowledge, because it leads you to so much other information, but it is essentially necessary to lead the way to a correct understanding of the science of astronomy.

But if you should go to other parts of the earth, the inhabitants there would think the appearance of our sun as amusing as you do theirs. At the time of the next equinox you must commence a course of observation on his appearance here. For our next lesson I will give you a plan for making such a course.

LESSON TWENTY-SECOND.

PLAN OF OBSERVATION OF THE SUN'S APPARENT COURSE.

Mother. Take one day for observation in each month, which will make twelve observations in a year. On these days look at the sun through a piece of smoked glass, so as not to injure your eyes, and observe his course through the heavens. When I call on you at the close of the year, you can point to the place in the horizon which he occupied on this particular day, trace him along with his true slope, and point to the place in the meridian which

he occupied at noon, and then carry your hand down to his place in the west. When you have faithfully observed the sun in this manner through the year, I can make you understand much better than you would now, several things which I wish to teach you in a more extensive geographical course, that I intend giving you soon. This observation will also be the commencement of your astronomical studies. You could not recollect each observation without writing it down at the time you made it. In order to do this, you must consider that all circles are said to be divided into 360 degrees; therefore, a quarter of any circle is ninety degrees. Point to the zenith; carry your hand over to the south. You have constantly pointed towards the meridian, and traced a quarter of its circle. The sun at noon is always to us somewhere on this line. If you reckon the whole of this line ninety degrees, of course half of it will be forty-five. Degrees mean nothing more than equal parts. If you should judge then at noon, that the sun is about half way from the zenith to the horizon, write that it is forty-five degrees from the zenith or horizon. If you judge that it is about one third of the distance from the zenith to the horizon, write that it is about 60 degrees from the horizon, or 30 degrees from the zenith, which you know is the same thing.

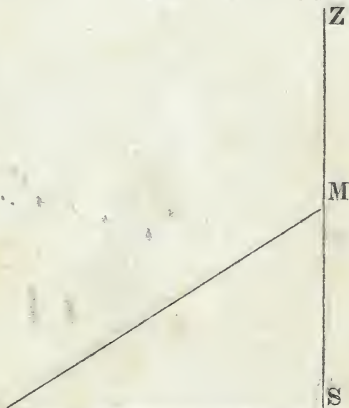
Now observe that the horizon from the point east to the point south, is a quarter of a circle, and this also is divided into ninety equal parts. A quarter of a circle is, as I told you, always supposed to be divided into ninety degrees, which you now perceive to be a very great convenience. This character ($^{\circ}$) is used to signify degrees.

From the point east, round to the point north, is also divided into the same. When the sun, at his rising and setting, appears to vary from the point

east and west, you will know how to express it. For instance, should the sun appear to rise about one ninth part of the distance from east round to the south, you would say that he rose about 10 degrees south of east.

If you knew how to express what is the slope of the sun as he rises towards the meridian, you would now be able to write your observations in quite a scientific manner. Suppose you are standing, your face to the south, to observe the sun; let the line E S. represent the horizon from the east to the south, and S Z. the meridian. Suppose the sun rises in the east and moves towards the meridian in the line

E M. The point E. where the lines meet is an angle, and is a greater or less angle in proportion as these lines are farther from each other, or nearer together. This is the angle which the sun's daily path makes with the horizon. If the sun comes to the E



meridian near the southern horizon, the angle at E will be small; if far from it, it will be large. When the sun is at the equinoxes, you recollect it rises in the east, or just half way between the north and south points in the heavens, and at this time the degrees of the meridian between the point south (S) and the place where the sun comes to the meridian, (M.) are the measure of this angle. But the angle will al-

ways be the same, whether it rises in the east or elsewhere, so that if you make your observation at the time of the equinox, it will be made once for all.

I must now tell you, although the remark rather belongs to astronomy, that the line of the sun's course at the time of the equinoxes (E. M.) is the same as the *equator of the heavens*. The latitude of any place is so many degrees, as the distance of the point M. from the zenith ; that is, the latitude of any place is so many degrees, as the sun is at noon from the zenith at the time of the equinoxes.

Your observations, then, will be made thus : On ——— day of ——— month, the sun rose about ——— degrees from the east, ascended with an angle of about ——— degrees, came to the meridian about ——— degrees from the zenith. Observe whether you do not find his course downwards from the meridian, from noon to sunset, exactly the same as his course upwards from sun-rise till noon.

Frank. I have been thinking that this must be a very curious sun, to be moving at the same time so very differently for people in different parts of the earth.

Mother. I will now tell you something which will surprise you. The sun does not move at all. His seeming motions are caused, not by his changing his place with regard to us, but by our changing our place with respect to him. Have you not sometimes found, when you have been moving in a very gentle manner, that every thing seemed moving in a direction contrary to your own motion ?

Frank. Oh yes ! That amused me very much when I sailed in the steam boat down the Hudson River. The wind being very high, you remember the boat rocked, a strange feeling of something pleasing, yet awful, stole over me, while it seemed that the fields, and forests, and mountains

were all rising as I sunk, and sinking as I rose, and darting swiftly to the north as I passed to the south.

Mother. An excellent illustration. You see from this that motion is not always as it seems. Now bear it in mind, that the earth on which we live is round; that let you be on what part of it you will, your feet point to the centre, and that part of the heavens towards which your head points, (seems to you the highest point or zenith.) If then you stand on that part of the earth, (as at the equator,) where your head points directly towards the sun at noon, then the sun appears to you in the zenith. Now imagine a line, (an imaginary line you know is not heavy,) imagine a line I say, which rests upon your head and passes directly up into the heavens, which shall move as you move. The top of this line is your zenith, and if you are at the equator, at noon it would point directly to the sun. Now suppose you set out from the equator, carrying your line with you, on a journey to the north pole. As you go north, your zenith, or top of your imaginary line, recedes from the sun, while it seems to you that the sun has moved away from your zenith downwards towards the south; and if you go from the equator towards the south, the sun seems to go from your zenith downwards towards the north.

Frank. (That seems to account for the sun's appearing sometimes directly over the heads of people, sometimes north, and sometimes south of them.) But why, if the sun does not move, does he seem to go round the earth every day. By your account, if we should all set out, and run round the earth in twenty-four hours from west to east, the sun would appear to move as he now does, in the contrary way from east to west. Mother do not laugh at me.

Mother. Sincerely, my boy, do I ask your pardon. But be assured it was not a laugh of derision,

but of pleasure. You were so intent on your principle, that you did not seem to perceive that your illustration of our all running round the globe over land and over sea, nearly 25,000 miles in a day, was rather ludicrous; but what delighted me was the originality of your idea, and the justness of your conclusion; which as I have unintentionally wounded your feelings, I will say I exulted to think, showed in a child the workings of a fertile and vigorous mind. But after all, we have much the same journey to perform as you have imagined. The difference is, that we do not go on foot, we ride.

Frank. Ride, Mother! How? You make me laugh in my turn.

Mother. On the earth. That is our carriage. We go round once in twenty-four hours, and as when you sailed to the south, the mountains seemed to move swiftly to the north; so, as on our earth, we whirl round like a great top, from west to east, the sun seems to be going round us from east to west. Speaking of a top, you know that when one is in motion, every part of it does not move with equal swiftness. The outer part seems to move as around an imaginary line in the centre. This is its *axis*. The earth also has an axis, around which it moves. This passes from the north to the south pole. You know also that a top, while it is turning round its own axis, moves from one part of the floor to the other. So the earth, at the same time that it is turning on its axis, is moving round the sun once a year. In this motion the earth changes in a small degree its relative situation to the sun, so that his rays do not fall constantly on the equator, but sometimes on the other parts of the earth's surface within the tropics. But I will not attempt to explain this to you until you are older. At present, you must be sometimes contented to learn facts, without puzzling yourself

to understand the reasons; as what you would now find very difficult, you will find easy when you are older, if you are careful to learn and remember what I now teach you.

LESSON TWENTY-THIRD.

EXPLANATION OF LATITUDE CONTINUED.—ZONES AND CLIMATES.

Mother. You have now seen that in going from the equator to either pole, there are two places where there are remarkable changes in the circumstances of the sun's appearances. The first is where he ceases to be vertical. The tropics are here drawn. The second is where he begins to wheel round for a whole twenty-four hours at the summer solstice, without setting; or in other words, where the inhabitants do not have day and night every twenty-four hours. At these places are drawn the polar circles.

These four circles divide the earth into five unequal parts, called Zones. With the torrid zone, between the tropics, you are already acquainted.—Those which extend from the tropics to the polar circles, are called the Northern, Temperate, and Southern Temperate Zones. That reaching from the Arctic circle to the N. Pole, is the northern Frigid zone. That extending from the Antarctic circle to the South Pole, is the Southern Frigid zone.

Now take your map and tell me what countries are in the Northern Temperate zone? what in the

Southern Temperate ? what in the Northern Frigid ? What do you observe of the Southern Frigid zone ?

Concerning the climates of places, it is a general rule, that the nearer they are to the equator the warmer is the climate ; to this rule, however, there are some exceptions, which you will learn particularly when you take a more extensive course of geography. I will mention only two ; the first is, that it grows colder as we ascend mountains. Even under the equator, the highest mountains are covered with perpetual snow. Another exception to the general rule is, that the countries in Europe are warmer than those in America, at the same distance from the equator.

Near the equator, the heat where the land is level, is so great during the day, that it is dangerous even to the natives to be exposed to it without an umbrella, or other shade. The ignorant part of the natives think that the people of other countries are only making a jest of them, when they tell them that water becomes solid from cold. They have no season like our winter, and little other change except from wet to dry. The climate is very warm in those parts of the temperate zones which are nearest to the torrid zone. In going towards the middle of these zones, the weather becomes temperate. Going towards the polar circles, we find the winters are intensely cold, and at last we come to those frozen regions, round the poles, where no living thing has been known to exist. The regions round the equator have been called the tropical, or hot regions ; next to these the warm ; next the temperate, in which we live ; next the cold ; and last the frozen.

You now perceive that it is not without reason that geographers have drawn this line upon the earth, which they call the equator, as so much depends

on our living near to or far from the part of the earth where it is drawn.

There are many other interesting circumstances respecting countries, which we may know when we know their distance from the equator.

Vegetable productions of course, differ with the climates, and therefore with the distance of the place from the equator. The hot regions produce such fruits as oranges, lemons, pine-apples, and many others equally delicious. The sugar cane grows there, and the coffee-plant, and the cocoa-tree, which bears a nut from which chocolate is obtained. The articles called spices, are also from these regions; such as cloves, cinnamon, nutmeg, &c.

Next to these, in the warm countries, the wine-grape, rice, cotton, indigo, and Indian corn, or maize, is found. To know what grows in the temperate zones, you must look around you into the fields. What do you perceive in looking round you?

Frank. I see waving fields of wheat, rye, oats, barley. I see also flax, Indian corn, and potatoes. Cherries and currants are nearly gone. Plums and pears are ripe, and we shall have a great supply of apples for winter. In our garden too we have beets, carrots, peas, beans, cabbage, onions, and melons. We have also plenty of grass, which I suppose grows every where.

Mother. Oh no! as you go towards the equator, the fields, instead of the beautiful green here presented, appear yellow and parched, and where it is very hot, the grass will not grow at all. As you go towards the poles, it dwindles, and at last disappears. Here, also, their forest trees appear stunted, and at last we come to where all vegetation ceases.

The animals also vary with the climates of places, and consequently with their distances from the equa-

tor. Some animals subsist in almost all latitudes where cultivation is practicable, and the inhabitants become numerous. You can tell me some of the most useful animals which are found in the temperate zones.

Frank. Those with which we are best acquainted are, the horse, the ox, the sheep, the swine, the dog, and the cat.

Mother. Yes. And besides these are many wild animals, such as the fox, the bear, the hare, the deer, the rat, the mouse, the weasel and squirrel, which are found in all habitable latitudes. The fur of the same animal becomes, however, by the kind care of Him whose tender mercies are over all his works, warmer and thicker as the climate where they live becomes colder. It also becomes white, which you will find when you study chemistry is better for them, as the heat of their bodies is not so likely to escape. You saw many of the most remarkable animals of other countries, in the collection which was here a few days since.

The largest and most beautiful animals are found in the torrid zone. Some of them, as the lion, the tiger, and the leopard, are, as you remember, beautiful to look at, but they are so fierce and dangerous that they cannot be tamed by man; while the elephant, the camel, the dromedary, the ass and the mule, are beasts of burden, and are as useful to the inhabitants of those countries where they are found, as our horses, and oxen, and sheep. The camels, and mules, and dromedaries, often carry great quantities of merchandize across large countries and deserts, where they have no water to drink for several days.

In the torrid zone are also found many poisonous reptiles, some of which are of an enormous size.—Among these are the crocodile and alligators which

are found on the banks of rivers, and stand ready to devour the incautious traveller ; and the anaconda, the largest serpent known, which when he is hungry, will first crush large and powerful animals, by coiling himself around them, and then devour them.

The rein-deer and the dog, are used in extreme cold regions to draw sledges over the snow and ice. The rein-deer is found near the frozen ocean, and supplies the natives also with food and clothing.— You have seen in your little library, pictures of most of these animals, from which you have doubtless an idea of their appearance. As you become older, you must read in larger books more particular accounts of them.

LESSON TWENTY-FOURTH.

EXPLANATION OF LATITUDE CONTINUED.

Frank. Why really, I find that so many important things depend on our being near to the equator, or far from it, that I should think one of the very first things a geographer would tell us concerning a country would be, whether it was near the equator or at a distance from it ; and indeed, I should think they would invent some way to tell exactly at what distance any place is from it.

Mother. This very thing is done, and I am glad you have comprehended the usefulness of it, otherwise you might have found it hard to learn. As it is necessary so often in geography to mark the distance of places from the equator, it is convenient to have one word which expresses it. This word is one which we have already used, although as it ap-

pears without your fully understanding it. It is latitude.

Frank. Indeed, latitude then, which I thought such a tedious word, signifies distance from the equator.

Mother. Yes ; but latitude is not, however, reckoned in miles from the equator, but in degrees. By simple multiplication you can, whenever you choose, change degrees into miles. Each degree is about $69\frac{1}{2}$ miles, and there are between the equator and either pole, ninety degrees. Each degree is divided into 60 minutes, so that a minute of a degree is a little more than a mile. Minutes are marked thus ($'$) $23^{\circ} 30'$.

In the same way too you may find out how far it is round the whole earth, or which is the same thing, what is the circumference of the earth. Multiply 360° by $69\frac{1}{2}$; the product will be the earth's circumference.

Frank. So then if you should say a place is in 20 degrees of latitude, that means that it is twenty times $69\frac{1}{2}$ miles from the equator.

Mother. Yes ; and if it is north of the equator, it is said to be in north latitude ; if south in south latitude. Latitude is reckoned on a line drawn direct from the equator each way to both the poles.—Such lines are called meridians, or as I shall presently explain to you, lines of longitude.

Now take the map of the world and learn to find the latitudes of places from that. The outer edge of the two round parts representing hemispheres, which means the same as half spheres, or half globes, represents the meridian. On this map it is divided into parts each representing two degrees. Count them—you will find five between each of the numbers marked 10, 20, &c. Suppose you wished to find on the map all the places which are in S. lati-

tude 25° . Look on the edge of the map between the equator and the S. pole, till you find 20° , then count off two and half of the divisions, which will bring you 25° S. latitude. Now keep your finger along half way between the parallels 20° and 30° , and all the places it passes over will be in S. latitude 25° . Tracing from east to west, your finger first passes over the centre of New Holland, then through the Indian ocean. It just touches the S. part of Madagascar—passes through the southern part of Africa. Now you must tell what other places you would pass through in going round the world in S. latitude 25° .

What latitude do we live in?

You must not only trace out the countries, islands, &c. on this parallel, but you must faithfully commit them to memory.

LESSON TWENTY-FIFTH.

LATITUDES OF PLACES.

Mother. Now you understand the nature of latitude, you must learn the latitudes of the continents and their large divisions. Begin with South America.

Frank. But that extends so far from north to south, that it is in a great many different latitudes.

Mother. Yes, but you only learn what parallels of latitude it lies between. If we find the extreme northern part of a country, and the extreme southern part, and trace them to the outer edge of the map, these will be the latitude sought. Place your finger on the extreme northern part of S. America,

now move your finger eastward, as you come to the edge of the map soonest by tracing in that direction. Now you have come to the edge of the map, you find 12° N. of the equator. The northern part of S. America is then in N. latitude 12° . Now place your finger on Cape Horn, which is commonly reckoned the southern extremity of the continent, although in reality it is the southern extremity of an Island. You perceive it is between two parallels of latitude, but a little nearer to the S. than to the N. one. Trace east and keep the same proportional distance between the two. Now you are at the edge of the map, you find the parallel nearest the equator is 50° . Cape Horn is then six degrees more south of the equator than the parallel 50° , that is, it is in S. latitude 56° . South America then lies between N. latitude 12° and S. latitude 56° .

Now find by the same method the latitude of N. America, of Europe, of Asia, of New Holland, of Africa. I have marked the tracing on the map to make your task easier, in all these cases, except Africa and New Holland, the latitudes of which are easy to be found.

What is the latitude of the United States? I have sketched on your map the parallels between which it lies. What are the principal countries which lie in the same latitude as the United States? What countries are between the same parallels south latitude? These parallels are also traced on your map. Find the same latitude south which we live in north, and the people will have the same kind of climate. They will see the sun in the north exactly as we see it in the south, and their winter will be when it is our summer. What countries will this line pass through?

LESSON TWENTY-SIXTH.

LONGITUDE.

Frank. I see on the map lines running up and down—that is from north to south. I suppose these are not real lines found on the earth, any more than the lines of latitude. Will you explain to me what these lines are called, and why they are drawn?

Mother. They are called the *meridians* of the places through which they pass, as they are drawn on the earth directly under the meridian of the heavens, as it appears to the inhabitants of those places. Any one of them passes through all the places which have noon at the same instant. Those places east of us have noon sooner than we, those west of us later.

The lines of longitude are drawn on this map of the world ten degrees distant from each other. Suppose we live where one of these lines is drawn, then the people who live under the next line towards the east, are said to be ten degrees of longitude east of us, and those who live under the one next towards the west, are ten degrees west longitude from us.—But we cannot all have our own meridian of longitude to reckon from. This would make great confusion in the science of geography. It is much better that we should all agree upon some one. Many of the learned have agreed to call that meridian which passes through the city of London, the first meridian, and of course to reckon the longitude of other places east or west according as their meridian is east or west from this. Look on the map.—Here is London, which is, on the whole, the most important city in the world. Here is the meridian which passes through it. Tracing it south we come to the equator. Here we find a cypher. That

means that the places under this line have no longitude, just as those under the equator have no latitude. Now look east, you find on the equator, under the next line, 10. That is, all places under this line are in east longitude ten.—Now observe the same in going west. The next to the tens are twenties each way, and so on till going east from the meridian of London half way round the globe, and west half round, we at last meet at 180° , the greatest longitude that any place can have.

Longitude then is a distance from any fixed meridian reckoned east and west on the equator. The meridian assumed or agreed on as the first, is that of London. Now let me see if you understand what I have been teaching you—take your map. You must now learn the longitude of the principal divisions of the earth. Begin with South America.—Find its most easterly extremity, Cape St. Roque, and trace from it to the equator. You find a line drawn from it north to the equator, cuts about half way from 30° to 40° . Of course its longitude is 35° . Now find the most westerly extremity, Cape Blanco, and trace that to the equator in the same manner. Here the equator is cut about one degree west of eighty, which makes its longitude eighty one. South America is then between 35° and 81° West longitude.

Now take North America, and find its longitude in the same manner. Next take the divisions of the eastern continent. Begin with Africa, as that is the easiest. As the meridian of London passes through it, it is part in E. longitude, and part in W. Say therefore, Africa lies between — degrees E. longitude, and — degrees W. from the meridian of London. The same form of describing the longitude is proper also for Europe, as that lies partly in E. longitude from the meridian of London, and

partly in W. It is difficult to describe the longitude of Asia, and I will assist you in the description, and not, as is sometimes the case, describe for you as long as every thing is plain, and desert you when we come to a real difficulty. First find the longitude of the western extremity. There is no difficulty in this. Now find the eastern extremity of Asia. In looking for this, you must remember that the parts of the map most distant, represent parts of the earth's surface which belong together. A part of Asia then you find on what in this map is set down on the western hemisphere. By tracing easterly upon it, you find Icy Cape, the eastern extremity of Asia.—Carry your finger as directed, to the equator. There you find that you have passed by all the degrees of E. longitude, and ten degrees of W. longitude to 170° . So that at first thought you would say that Asia lies between E. longitude 26° and W. longitude 170 —but that would be to assert that Asia passes through all those degrees of longitude where it is not. We must then find some other form of words to express truly the longitude of Asia. I will give you two methods of describing it, of which you may take your choice.

Asia extends from the 25th degree E. from London, through all the degrees of E. longitude, and ten degrees of W. longitude, to 170° W. Or you may say, as all who understood the subject will know why, that Asia extends from 25° to 190° E. longitude from London, although by our definition there is no such thing as 190° E. longitude—longitude being reckoned each way from the meridian to 180° .

What is the longitude of New Holland? You must now tell what is the latitude and longitude of the Eastern continent? the Western? of North America? of S. America? of Europe? Asia? Africa? New Holland?

You will recollect that all the people who live under the same meridian, have noon at the same time. It is now noon here. Tell me from your map at what other places it is noon.

At what place is it noon at the same instant as at London?

If a place lies fifteen degrees of longitude E. of us, it has noon just one hour earlier than we do, and when it is noon here it is one o'clock there, and so through the whole twenty-four hours. So that people east of us have the same hours before us, and those west of us have the same hours later.

Suppose it is now noon here. It is one o'clock to all living under a meridian 15° E.— 15° further E. will make 30° E. of us. In that longitude it is now two o'clock.

In 60° E. from us it is 4 o'clock.

In 90 “ 6 “ about sunset

In 120 “ 8 “

In 150 “ 10 “

In 180 “ 12 “ and it is midnight

while it is noon with us,—and this you perceive is under the meridian exactly opposite on the globe to ours. It is always the case, that when it is noon under any meridian, it is midnight at all the places under the opposite meridian.

Frank. What you have now taught me, has given me many new and pleasant ideas. I thought that twelve o'clock, or one, must be the same instant all over the world; but now I find that it is every hour in the twenty-four in some parts of the earth. I recollect I heard a story once of a gentleman going to a foreign country, who had a fancy to look at a bright star every evening, at the same moment, with a certain lady whom he left behind him, and they agreed to look at it at nine o'clock. But it seems if the gentleman travelled E. 30° , he would view it sooner than the lady by two hours.

LESSON TWENTY-SEVENTH.

PART I.

BAYS, GULFS, STRAITS, MOUNTAINS, RIVERS, &c. ON THE
MAP OF THE WORLD.

Mother. Your next lesson will commence with the seas, bays, &c. on the map of the world.

How is the western continent divided? What part of the eastern continent is called Asia? What part is called Europe? What Africa? What are the principal Seas of Europe? Under the general name of seas, I mean to include bays, gulfs, &c. What are the principal seas of America? of Asia? of Africa?

By what strait does the Mediterranean Sea communicate with the Atlantic? the Red Sea with the Indian Ocean? Gulf of St. Lawrence with the Atlantic, N. of the Island of Newfoundland.

Where is Baffin's Bay? Davis' Strait? the Gulf of St. Lawrence? of Mexico? of California? Where are Beering's Straits?

Where is the Carribean Sea? the Straits of Magellan?

Describe the situation of the Mediterranean Sea—the Gulf of Guinea—Mozambique Channel—Red Sea—Sea of Arabia—of Bengal—Chinese Sea—Gulf of Siam—Yellow Sea—Gulf of Corea—Sea of Okotsk.

You have already learned the principal mountains of our own country and of Europe. You can now pay your attention to those of the other grand divisions of the world. What mountains do you find on your map of Asia? Of Africa? Describe them.—What mountains extend along the western coast of South America? The range which extends along

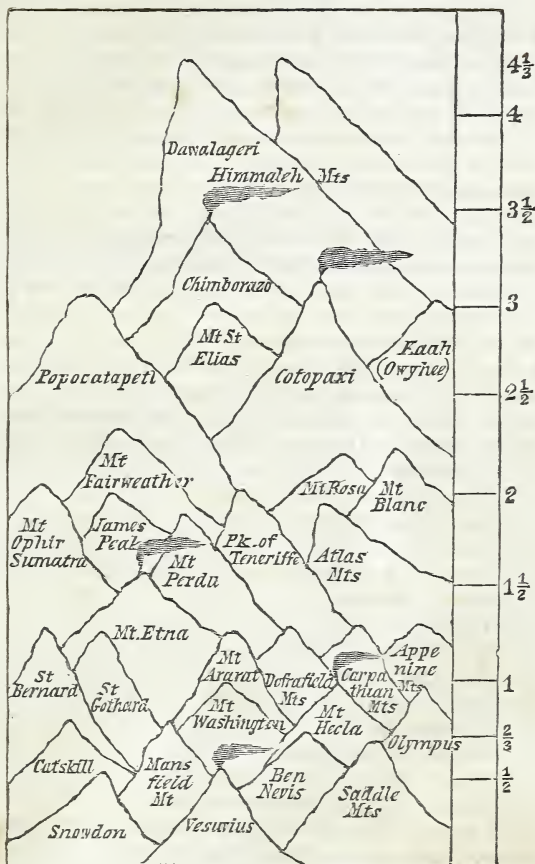
the western coast of North America, called the Rocky or Chippewan mountains, may be considered as a continuation of the Andes. This great American chain is the only one which extends several thousands miles in a single line. The highest peaks of this chain are Cotapaxi and Chimborazo, which are volcanoes, near Quito in South America, Popocatepetl in Mexico; James Peak, near the sources of the Arkansaw and La Platte Rivers, in N. America; and Mt. St. Elias and Mt. Fairweather, near its termination at the Northwest coast.

Now we will compare the principal ranges of mountains in the world. Here is a list in which they are set down according to their length. The Allegany range, the most remarkable in our own country, is taken as a measure for the others.

The whole American chain, extending from Cape Horn to Mt. St. Elias, is thirteen times the length of the Allegany.

Mexican and Rocky mountains,	8
Altain mountains,	6
Andes,	5
Mountains of the Moon,	2
Mount Atlas	$1\frac{2}{3}$
Ural,	$1\frac{1}{2}$
Dofrafield,	1
Allegany,	1
Alps,	$\frac{2}{3}$
Carpathian,	$\frac{1}{2}$
Green mountains,	$\frac{1}{3}$
Pyrenees,	$\frac{1}{3}$

Describe the great American chain. How many times the length of the Allegany, is it? In the same manner describe the others.



Comparative height of Mountains.

I have introduced a little comparative view of the principal mountains in the world, as to their height. You probably know the situation of most of them. Mount Washington, which you recollect is the highest point of land in the United States, is made the standard or measure mountain. Its height is 6,634 feet, or about one mile and a quarter. Learn from this engraving, (as the picture will assist you to remember,) which are the highest mountains in the world, and what is their height in comparison with Mount Washington. What mountains are of less elevation than the measure mountain? What mountains are greater in height? How many times higher than Mount Washington is Dhawalagiri, the highest known mountain? Learn the comparative heights of the several principal mountains in the world. What are the principal volcanoes? Which of them are higher than Mount Washington?

An *isthmus* is a neck of land joining large portions of the earth.

The principal isthmuses in the world are those of Darien—Suez. Where are they?

The most noted *capes* in the world are probably those of Cape Horn and Good Hope. Navigators are obliged to take very long voyages to pass round them. When the inhabitants of the United States wish to send ships to the shores of Mexico and Peru, they are obliged to sail round or double Cape Horn. And when Europeans wish to visit the East Indies, which is a general name for China and the islands near it, they are obliged to double the Cape of Good Hope; that is to sail round it.

Frank. If canals could be cut across the isthmuses of Darien and Suez, what a saving of time in voyages would be made!

Mother. It is probable that there will be such canals in the course of a few years.

The other remarkable capes, whose situations I wish you here to learn, are,—On the Western Continent—Cape Farewell, Cape Florida, St. Roque, Blanco, St. Lucas, Cape Prince of Wales, and Alaska, which is a promontory or high rocky point of land running into the sea.

On the Eastern Continent—North Cape, Cape Finisterre, St. Vincent, Cape Verd, Guardafui, Comorin.

Here are the names of the principal rivers in the world. You must learn to describe each one separately, whether I ask them to you in the order in which I have set them down, or in any other order. Indeed I shall be careful not to question you in the same manner at each lesson. When I am satisfied that you can describe them singly, I shall give you different questions, as I did while you were on the map of the United States; such as what are the rivers in a particular country, or what are those that discharge their waters into a particular sea or ocean. You must not forget to learn how their size compares with that which the New England people call the Great River.

Rivers of N. America; Coppermine, Nelson, St. Lawrence, Ottawas, Mississippi, Red, Arkansaw, Ohio, Missouri, Rio Del Norte, Colorado, Columbia, Clark's, Lewis', Mackenzie's.

Rivers of S. America; Oronoco, Amazon, Negro, Madeira, Topayos, Xingu, Tocantines, St. Francisco, Paraguay, Panama, Pilcomayo, and Salado. The streams which take their rise in the Andes and flow west, are numerous, but their currents are rapid, because they rise in such high land, and they are short, because the ocean is so near the mountains.

Learn the latitude and longitude of the mouth of the St. Lawrence,—the Mississippi.

In Europe, the largest rivers are the Wolga, the Danube, the Dnieper, the Dniester, and Don.

Large rivers of Asia ; Tigris, Euphrates, Indus, Ganges, Burrampooter, Irrawady, Mecon, Kiangku, Hoangho, Amour, Lena, Yenesei, Oby, Irtish, Tobol, Ural.

Rivers of Africa ; Nile, Niger, Senegal, Gambia, Zaire, Oliphants, Orange, Cuama.

LESSON TWENTY-SEVENTH.

PART II.

Describe the boundaries of Europe—of Asia—of Africa—of North America—of South America.

You must next learn the boundaries of the countries of each quarter of the globe, and I shall ask questions concerning them much in the same manner as I did the United States. What are those of NORTH AMERICA which lie along the east coast on the waters of the Atlantic ?

Greenland was formerly supposed to be a peninsula United to North America, but late discoveries render it probable that it is an island. It is a cold and barren region with a few scattered inhabitants. Where is Greenland ?

What is the most southerly country of N. America ?

A tract of land on the N. W. coast is claimed by Russia. All the countries north of the U. States, except this, are British provinces. The governor is not chosen by the people, as our governors are, but is sent over from Great Britain by the king.

Formerly Mexico and a part of the countries of SOUTH AMERICA were under the government of

Spain, but their inhabitants determined to be free and independent, like those of the United States. They fought the troops sent against them by the Spanish, and conquered them; and now they are no longer subject to that country; but they are still in an unsettled state respecting their government. *Colombia* (which includes New Grenada and Venezuela), *Buenos Ayres*, *Peru*, and *Chili*, are called the South American Republics.

Give the boundaries of these countries.—Of Brazil—of Guiana—of Patagonia. The extent of these countries cannot at present be ascertained with accuracy.

Brazil was formerly a colony of Portugal, but the king of Portugal, when times were troublesome in Europe, removed to Brazil, and there held his court. A king's family and visitors are thus called. The government of Brazil is therefore a monarchy, but I shall not at present dwell on the subject of government.

Having studied the map of EUROPE, you can, I presume, tell me the principal countries in the order of their size. Russia in Europe is the largest and the most north-easterly country of Europe. Sweden, the next in size, lies round the north part of the Baltic Sea, and is 14 times less in size than the United States.

Describe the situation of the whole Russian empire, and give its comparative size.

The Chinese Empire includes China proper, Chinese Tartary and Thibet. Between what countries is the Chinese wall? Where are these countries? Give the boundaries of Turkey, Arabia, Persia, East Persia, Hindostan, Birmah, Tonkin, Independent Tartary: Which of these countries lie on the waters of the Indian Ocean?—which on the Pacific?

Which are peninsulas? Europe and Asia have each three peninsulas on the south.

In what part of AFRICA are the Barbary states? They are Morocco, Fez, Algiers, Tunis, Tripoli and Barca. In what order have I named them? Where is Fezzan? Give the boundaries of Egypt, Nubia, Abyssinia, Soudan or Nigritia. Where is Upper Guinea? What are the different portions of this coast called? Where is Senegambia? Ashantee? What small countries east of this? Where is Lower Guinea? What small countries does it include? Where is Ethiopia? The Great Desert of Sahara? The coast of Zanguebar? The country of the Hottentots?

The English colony of Sierra Leone, and the American colony of Liberia, were established by those governments as places of resort for recaptured and emancipated slaves, and free Africans who wish to become civilized. Where are these colonies?

I shall now give you another exercise on the countries. Here is a table in which they are arranged in the order of their population, and compared with the United States, which is here reckoned at 10 millions.

When I question you on the population, I expect you will also give me some account of the situation of each country, which you can readily do, if you have learned the maps as perfectly as I wished. For example: what countries have the same number of inhabitants as the United States? Spain, a south-westerly peninsula of Europe; Arabia, a south-westerly peninsula of Asia; Prussia, the most northerly country of Europe, &c.

What countries have more than twice the number of inhabitants belonging to the United States, and what is the comparative number of each?

What countries have less than twice but more than once the number, &c.?

In the same manner learn the whole table.

Comparison of Countries with the United States in respect to population, that of the U. States being reckoned at ten millions.

More than twice the number of inhabit. contained in the U. States.	ASIA has 40 times as many inhabitants as the United States.					
	Chinese Empire					20
	Half of the inhabitants of Asia belong to the Chinese Empire.					
	EUROPE					18
	AFRICA					5
	Whole Russian Empire					$4\frac{1}{2}$
	Russia in Europe					$3\frac{1}{2}$
	France					3
	Austria					$2\frac{5}{10}$
	Kingdom of Great Britain					$2\frac{1}{10}$
Less than twice, but more than once the number.	NORTH AMERICA					2
	Tonquin					$1\frac{4}{5}$
	SOUTH AMERICA					$1\frac{1}{2}$
	Morocco					$1\frac{2}{5}$
	Burman Empire					
	East Persia					
	Italy					$1\frac{3}{10}$
	England and Wales					$1\frac{2}{10}$
The same number.	United States					1
	Spain					
	Prussia					
	Arabia					
	West Persia					
Not equal, but more than half.	Turkey in Asia					$\frac{9}{1\frac{4}{5}}$
	Asiatic Russia					
	Turkey in Europe					
	Mexico					
	Ireland					
	Netherlands					$\frac{1}{2}$

Less than half, but more than one quarter	Portugal	.	.	.	.	.	.	.	.	$\frac{1}{3}$
	Egypt	.	.	.	.	.	.	.	.
	Tunis	.	.	.	.	.	.	.	.
	Poland	.	.	.	.	.	.	.	.
Less than a quarter, but more than one-eighth.	Brazil	.	.	.	.	.	.	.	.	$\frac{1}{4}$
	Sweden	.	.	.	.	.	.	.	.
	Abyssinia	.	.	.	.	.	.	.	.
	La Plata	.	.	.	.	.	.	.	.	$\frac{1}{5}$
Less than one-eighth, but more than one-twentieth.	Scotland	.	.	.	.	.	.	.	.
	Denmark	.	.	.	.	.	.	.	.	$\frac{1}{6}$
	Switzerland	.	.	.	.	.	.	.	.	$\frac{1}{7}$
	Algiers	.	.	.	.	.	.	.	.
Less than one-twentieth, but more than one-fiftieth.	New-York	.	.	.	.	.	.	.	.
	Guatemala	.	.	.	.	.	.	.	.	$\frac{1}{8}$
	Pennsylvania	.	.	.	.	.	.	.	.
	Virginia	.	.	.	.	.	.	.	.
Less than one-twentieth, but more than one-fiftieth.	Chili	.	.	.	.	.	.	.	.
	Tripoli	.	.	.	.	.	.	.	.
	Venezuela	.	.	.	.	.	.	.	.	$\frac{1}{10}$
	Norway	.	.	.	.	.	.	.	.
Less than one-twentieth, but more than one-fiftieth.	North Carolina	.	.	.	.	.	.	.	.	$\frac{1}{15}$
	Ohio	.	.	.	.	.	.	.	.
	Kentucky	.	.	.	.	.	.	.	.
	Massachusetts	.	.	.	.	.	.	.	.	$\frac{1}{20}$
Less than one-twentieth, but more than one-fiftieth.	South Carolina	.	.	.	.	.	.	.	.
	Canada	.	.	.	.	.	.	.	.
	Tennessee	.	.	.	.	.	.	.	.	$\frac{1}{25}$
	Maryland	.	.	.	.	.	.	.	.
Less than one-twentieth, but more than one-fiftieth.	Georgia	.	.	.	.	.	.	.	.	$\frac{1}{32}$
	Maine	.	.	.	.	.	.	.	.
	New-Jersey	.	.	.	.	.	.	.	.	$\frac{1}{37}$
	Connecticut	.	.	.	.	.	.	.	.
Less than one-twentieth, but more than one-fiftieth.	New Hampshire	.	.	.	.	.	.	.	.	$\frac{1}{42}$
	Vermont	.	.	.	.	.	.	.	.
	Louisiana	.	.	.	.	.	.	.	.	$\frac{1}{66}$
	Indiana	.	.	.	.	.	.	.	.	$\frac{1}{78}$
Less than a fiftieth.	Alabama	.	.	.	.	.	.	.	.	$\frac{1}{125}$
	Rhode Island	.	.	.	.	.	.	.	.
	Mississippi	.	.	.	.	.	.	.	.	$\frac{1}{139}$
	Delaware	.	.	.	.	.	.	.	.
Less than a fiftieth.	Missouri	.	.	.	.	.	.	.	.	$\frac{1}{182}$
	Illinois	.	.	.	.	.	.	.	.	$\frac{1}{156}$
	District of Columbia	.	.	.	.	.	.	.	.	$\frac{1}{333}$

LESSON TWENTY-EIGHTH.**PRINCIPAL CITIES ON THE MAP OF THE WORLD.**

You may now learn from the map of the world, the principal cities of Asia, Africa, South America, and Mexico, taking each country separately, in the same manner that you learned those of Europe. You will then have learned the situation of the principal cities of the world. I am now going to give you an exercise which will require some time to learn ; in which they are arranged according to their size, and their population compared with that of New-York, which you recollect was 167,000. You will place them upon your map in the manner you have before been directed, and in pointing to a city or town, mention the number of inhabitants,—how it compares with New-York, and to what class it belongs. I shall also ask such questions as the following : What are the cities of the world which are of the first rank or class ? Where is each one situated, and what is its size compared with New-York ? Learn in this way every class in the table.

*Cities compared with New-York in respect to population, that of New-York being reckoned at 167,000, or $\frac{1}{6}$ of a million.**

FIRST CLASS, contains more than 6 times the number.		FOURTH CLASS.		About one and a half.
Pekin contains 18 times as many inhabitants as New- York.	as	A lep po, Lis bon, Vi en na, Am ster dam, Ma drid, Ca bul, Al giers,		
Nan kin,	12			About the same size as New-York.
Can ton,	9			
Lon'don,	6½			
Jed do,	6			
Hang-tcheou	6			
SECOND CLASS, less than 6, but more than 3 times		FIFTH CLASS.		
Par is,	4	Dub lin, Um me ra poo ra, Ber lin, Bom bay', Glas gow, Cash mere, La hore, Smyr na, Rio Janei ro,		About 3-4 the No. of inhab. as N. Y.
Cal cut ta,				
Ben a res,	3			
Con stan ti no ple,				
Mi a co,				
Su rat,				
THIRD CLASS.		SIXTH CLASS.		
Is pa han',	About twice the number.	Pa ler mo, Mex i co, Phil a del phi a, Mi lan', Rome, Bar ce lo na, Ham burg, Va len cia,		
Na ples,				
Mos cow,				
Ca i ro,				
Ma dras,				
Pe ters burgh,				

* In this table the classification corresponds with that in Woodbridge's and Willard's Geography. The mean number of the class is found and the comparison then made with New-York, that being reckoned 167,000, so that in each class the middle cities are the most strictly correct. Those above are somewhat larger than is expressed by the ratio fixed upon, and those below somewhat smaller. Yet, the whole is sufficiently correct for the purposes of general information. If particular knowledge of any place is needed, resort can be had to a gazeteer. The subject of population is that of all others in geography most fluctuating, and the most difficult for obtaining absolute certainty.

Sixth Class.—Contin.

Co pen ha gen,
Ed in burgh,
Mar seilles
Tom buc too,
Hou sa,
Ven ice,
A dri an o ple,
Liv er pool,
Ly ons,
Man ches ter,
St. Sal va dor,
Del hi,
He rat,
Fez,
Tu nis,

About three quarters of the number
of inhabitants in New-York.

SEVENTH CLASS.

Bour deaux,
Cork—Tu rin,
Bir ming ham,
Prague,
Rou en,
Se ville,
Brus sels,
Bris tol,
Gen o a,
Stock holm,
Flor ence,
Nantes,
O por to,
Bo logn a,
Ca diz,
Sa lon i ca,
Ha van na,
Qui to,
As tra chan,

About half the number of inhabitants in
New-York.

EIGHTH CLASS.

Se ra i
War saw,
Bres law,
Bal ti more,
Ant werp,
Lisle,
Ghent,

About 1-3d of
inhab. in N. Y.

Eighth Class.—Contin.

Mu nich,
Gua nax u a to,
Buen os Ayres,
Te her an,
Bu cha rest,
Ve ro na,
Plym outh,
Rot ter dam,
Kon igs burg,
Sar a gos sa,
Li ma,
Mal a ga,
Gren a da—Leghorn,
Po to si,
Gon dar,
Mo roc co,
Bas so ra,
Treb i zond,
Ca ta ne a,
Dant zic,
Lim er ick,
So phi a,
Liege,
Dres den,

About one third of the number of inhabitants
in New-York.

NINTH CLASS.

Tou louse,
Frank fort,
Ba ta via,
Sant i a go,
Lem burg,
Bos ton,
Hague,
A mi ens,
Cron stadt,
St. Sal va dor,
San ta Fe Bo go ta,
Bath,
Bre men,
Ri ga
Tri este,
Leeds,
New cas tle,
O des sa,

About one quarter of the number of inha-
bitants in New-York.

Ninth Class—Contin.

Cag li a ri,
Ran goon, } 1-4

TENTH CLASS.

Ab er deen,
Leip sic,
Cus co,
Se rin ga pa tam,
Mont pe lier,
Je ru sa lem,
Mog a dore,
Ca rac cas,
Cuy a ba,
Bel fast,
Cler mont,
Mes si na,
Val la do lid,
Ar e qui pa,
Tou lon,
New Or le ans,
Car tha ge na,
Gen e va,
Cra cow,
A bo mey,
To le do,
Be grade,
Han o ver,
Got ten burg,

ELEVENTH CLASS.

O ren burg,
Cu ma na,
Brest,
Pres burg,
Tours,
Ra tis bon,
Ha vre,
Hull,
Wil na,
Per nam bu co,
Cor do va,
Car tha ge na, S. A.
Par a ma ri bo,
Vil la Ri ca,
Al ex an dri a, (Egypt)

About one sixth of the number of inhabitants in New-York.

About one eighth of the number of inhabitants in New-York.

Eleventh Class—Contin.

Gua ti ma la,
Ve ra Cruz,
To bolsk,
Mec ca—Mo cha,
Teflis, } 1-8

TWELFTH CLASS.

Ja ro slav,
Perth,
Sy ra cuse,
Cape town,
Al i cant,
York,
Que bec,
Guay a quil,
Mon te Vi de o,
St. Paul,
Hal i fax,
Ber gen,
Bil bo a,
In ver ness, } About one tenth of the number of inhabitants in New-York.

THIRTEENTH CLASS.

Tan gier,
Trip o li,
Jas sey,
Carls cro na,
Sal a man ca,
Berne,
Wash ing ton,
Sa lem,
Ox ford,
Al ba ny,
St. Ubes,
Zante,
Ma lac ca,
Toms k,
Rich mond,
Prov i dence,
Me ri da,
Cam bridge,
Cher son,
Lon don der ry,
Ir kutsk,
Zu rich, } About one sixteenth of the number of inhabitants in New-York.

Thirteenth Class—Contin.

In spruck,
Ath ens,
Pan a ma,
Cin cin na ti

1-16

LARGE TOWNS.

Sim a lo a,
Got tin gen,
Dron theim,
Nor kop ing,
Port land,
Al ex an dri a,
New ark,
Troy,
Hart ford,
Mus cat,
New port,
Trux il lo,
Sa van nah,
George town,
New Ha ven,
Pitts burg,
El si nore,
Pe gu,
Sid ney Cove,
Ports mouth,
Nan tuck et,
Pe ters burg, (Vir.)
New bu ry port,
Lan cas ter,
Val pa rai so,
Bruns wick,
Le on,
Me di na,

About one twentieth of the number of inhabitants
in New-York.
About 1-30th No. inh. N. Y.

Large Towns—Contin.

La Gui ra,
Cam peach y,
Cay enne,
New bern,
Lynch burg,
Fred er ick town,
Lex ing ton,
Wil ming ton, (Del.)
Hud son,
St. Au gus tine,
Su ez,

1-30

SMALL TOWNS.

Up sal,
Fah lun,
Chris tian sand,
Lou is ville,
St. Lou is,
San ta Fe,
Au gus ta,
New Lon don,
Nash ville,
Co lum bi a,
York,
King ston,
Nor wick,
Ra leigh,
Wil ming ton, (N. C.)
Mo bile,
Chil i co the,
Natch ez,
Mil ledge ville,
Pen sa co la,
Knox ville,

About one fortieth of the number of inhabitants
in New-York.

LESSON TWENTY-NINTH.**ISLANDS ON THE MAP OF THE WORLD.**

Mother. Your next task will be to learn the situation of all the important islands in the world. You may consider them according to their contiguity to the continents, as being ranked under six general heads.—1. The American Islands. 2. The European. 3. The African. 4. The Asiatic. 5. Australasia. 6. Polynesia.

In questioning you on the American Islands I shall pursue the following order:—What are the islands in the Atlantic east of N. America? What between North and South America? What Islands are east of S. America? What South? What west in the Pacific? What west of N. America?

On the European Islands—What are in the Northern Ocean? In the Baltic Sea? In the Atlantic including Great Britain and the adjacent isles? What are in the Mediterranean?

On the African Islands—What are those west and northwest of that part of Africa which lies north of the Gulf of Guinea? What west of the southern part? What in the Indian Ocean east of Africa?

On the Asiatic islands—What islands are south of Asia in the Indian Ocean? What East, between Asia and Australasia? These are sometimes called the eastern Archipelago. What are near the southern coast, south of the Philippine Islands.

On Australasia—What large island is sometimes called a continent? What island north of it? What south? Mention the principal islands east of New Holland.

On Polynesia—What islands belonging to Polynesia lie north of the equator? What south?

In answering these questions, I shall expect you only to mention the larger islands; the names of the smaller ones you will not generally find on your map. After you have learned them in this systematic order, I shall exercise you by promiscuous questions, in this manner: Where are the Philippine Islands? What island is south of Hindostan? What east of the Gulf of St. Lawrence? Where is Ireland? The Society Islands?

If you can answer at once, when I question you in this manner, I shall know that you have studied your map faithfully; which is the first and most important step towards your becoming a good geographer.

LESSON THIRTIETH.

PLAN OF A REVIEW FOR EXAMINATION.

To Teachers. Although it should always be a teacher's first object in beginning with his pupils on any subject to make them understand it, yet other important considerations are afterwards to find place. A subject may be understood, though it has not received sufficient attention to be well remembered; or without its being comprehended in that order which, with the least labor of the memory, shall put the learner in possession of the greatest number of facts. Hence it is sometimes profitable in reviewing and preparing pupils for examination, to reverse the order in which the subject is presented for them to learn. Hence, also, the method of questioning on any study, should vary with the pupil's progress, and the rule is, that as he advances, his teacher should give him questions more and more general, and finally in preparing him for examina-

tion, confine him to the most general views of which the subject will admit.

Every intelligent and able teacher has, it is believed, methods of his own, which, although they may not be intrinsically better than those adopted by other good teachers, are yet better for him. It is not therefore the intention of the author to lay down decisively any plan of reviewing this work, but to leave this for every teacher to manage in his own way. Inexperienced instructors may, however, be gratified to find a sketch of a plan for examination given by the author, such as is pursued in her own school.

The class being before the examiners, the teacher calls on each scholar to draw some one of the maps belonging to the work. In this case the maps to be given out, if the directions of the book are followed, would be the map of the pupil's own town—of his native state—the second map of the United States—the third—the map of Europe—and lastly the map of the world. If the class is numerous several may draw the map of the world, some being directed to pay particular attention to the geography of Asia, some to that of Africa, and some to South America, these being to separate maps of these places. Some might draw maps of the world, for the sake of comparing the rivers; some paying particular attention to the cities, others to the mountains, &c.

From half an hour to an hour is given to the pupils to draw their maps, no models being now allowed them. The time taken up in drawing the maps, can at the pleasure of the teacher be occupied by the examination of some other class, or in questioning some of the pupils on the book. The former method is generally preferred. The class being called forward with their maps ready drawn,

can then be asked some introductory questions, to be answered from any parts of the book where the subjects are treated.

Definitions.—Geography—form of the earth—its surface—the divisions of land and water—oceans—continents—seas—bays—gulfs—lakes—sounds—the greatest depth of water—straits—mountains—rivers—connection between these last—peninsulas—~~islands~~—isthmuses—cap~~es~~. What information does your book give on these subjects? Give examples from the maps drawn for the examination.

Second—concerning maps. What appears to be the best method of acquiring the science of geography? The first step towards drawing a map? A scale of miles? The difference between any number of square miles and so many miles square?

Boundaries—sea coasts—rivers—cities—roads—mountains—How delineated on a map?

Why are not more objects placed on a map? When is one map said to be on a smaller scale than another? What is the consequence of diminishing the scale?

After these and any other introductory questions which the teacher may choose to give, the pupils can produce, each in his turn, the map given him to draw. He should point to the state, river, or city on his map, while he explains concerning them whatever he is directed by his instructor. He can here exhibit a great deal of knowledge in a short time, and show his power of communicating the ideas in his mind, in the important methods of speaking and drawing. If he points to his map, while he speaks, this is a kind of language of signs,* which shows as

* The teacher who is ambitious that his class should do well, must, among other things, pay previous attention to his performance in this language of signs: being careful that his pupil's hand always follows his words, moving his finger or pointer so as not to lag behind the description.

distinctly the pupil's knowledge of the location of the city, river, &c. as many words could do.

In explaining the map, the pupil of course follows his teacher's directions, and being master of his subject, he is not liable to be disconcerted if the directions are not given in any preconcerted order. But in general, I venture to say, that better methods will not easily be desired, than those which the instructor will have found in teaching this book, because these methods have been chosen from a careful attention to those operations of the mind, connected with memory. The general directions given in going over the map of the United States, are mostly such as I should pursue in the pupil's explanation of his map for examination, or if maps were studied and not drawn, I should question my pupils much in the same method.

First, give the names and locations of the states, connecting a number of them where it is practicable, with some one important object, as the ocean, a great river, or a natural boundary. Next, give questions on the particular boundaries, locations, and direction of one state from another, &c. Then, the mountains and rivers, introducing on these subjects the questions on the lessons which embrace the plan of comparison. Then, cities, their comparative population, location, &c.; roads, canals, colleges, &c.; the teacher remembering that when a new subject is brought forward which the book particularly dwells upon, that it is proper to turn the scholar aside from the explanation of his map, to give the substance of the information there acquired. On these subjects the questions connected with the work may be useful. Previous to the explanation of the map of the world, the questions on astronomical geography, latitude, longitude, &c. will occur. The comparison of all the countries, mountains, rivers and cities of

the world, will very properly finish the explanation of the maps ; after which the advantages of the study of geography may be introduced, unless where the teacher has chosen to commence with that subject ; it being equally proper either for the commencement or the conclusion of such an examination. It may not however be improper to remark, that as what is last in such an exhibition rests longest on the mind, the teacher would do well to close with something important, and if possible, with something that connects the study with the Great Author of all which is good.

THE AUTHOR'S FAREWELL ADDRESS.

My Dear Children—In writing this little work, I have cared for you. I have been anxious to be useful to you. I might have made my task easy by writing out parts of larger works, but I have been chiefly desirous to assist you in understanding your lessons. How many abler writers are also giving their best thoughts and exertions to enlighten you ! how many teachers are laboring to instruct you ! how many parents are devoting their lives to give you the means of improvement ! *Exert yourselves*, that our labors be not in vain.

Does it not sometimes surprize you, that people should consider you of so much consequence ? You are fond of your little sports, and are sometimes apt to feel that these are your most important concerns, and to think it almost unkind that you should be required to study, and not left, like the butterfly, to wander and play at your will. Learn better to estimate your own value. You are hereafter to constitute a nation, and that nation the first great Ameri-

can Republic. Proud and happy above that of all the nations who have gone before you, will your political destiny be, if you prepare yourselves by education to sustain the government under which you have the happiness to be born. The good and wise of every land look to your country to move, before the nations, as did the pillar of fire before the Israelites, to lead the way to liberty and happiness. It rests with you to realize, or disappoint their hopes.

The butterfly after it has fluttered for a few days exists no longer. You are to live forever. If you stood on the banks of a little brook which seemed playing with the pebbles over which it murmured, you would be delighted with its pleasantness, as those are with yours, who see you at your sports. But suppose you were told that this was the very brook which became, by constantly adding to its waters, the mighty Amazon, how would your ideas of its importance be instantly changed. And thus would your ideas of your own importance be changed, could you learn to regard yourselves as the christian regards you ; not merely as respects your course through this life, but after you have passed the barrier of death, and opened into the broad expanse of eternity.

This little work has been mostly written for you, while you were sleeping in your beds :—Perhaps it may be studied when she who writes it shall be sleeping in her grave. Impressed with this thought, she felt an affectionate desire to address to you, children of her country, lambs of her Saviour's flock, a short but tender farewell.

QUESTIONS ON GEOGRAPHY FOR BEGINNERS.

INTRODUCTORY CONVERSATION.

Note to Instructors.—No questions on these lessons were given in the first edition. Being in a great measure questions and explanations on the maps, the author judged them unnecessary. They are now added by request, and more particularly for the benefit of inexperienced teachers. Should the intelligent instructor see fit to use them at all, the author would advise him to say to his class—that they must read their lessons attentively, and make it their object to understand them, rather than be upon the search for answers to certain questions, telling them that they must not expect that he shall be confined to the questions here given; which they may consider—merely as specimens of the kind he shall ask them. Those given here, are such as should be asked the first time of the scholar's going over the book. The questions, every time of reviewing, should become more general, as, for instance on the first page, the second time it is recited, instead of the particular manner in which the questions were before given, ask what remarkable animals are mentioned, and from what countries they are brought. Again, an important part of the duty of the teacher, is to guard his pupils from receiving false or inadequate notions from the books they study. As for instance, the teacher should inform his pupil that there are some other countries which produce the animals, fruits, &c. mentioned. In short, after all that books can do, much remains for the living teacher.

In what countries are elephants found? Lions? Monkeys? What country produces oranges? What grapes, which being dried become raisins? Where does the tea plant grow? Where is broadcloth made? What is remarked concerning a spirit of observation?

LESSON 1st.—What is the signification of the term Geography? What advantages may be derived from a good knowledge of this

science to people in general? Of what use might it be to a farmer? To a merchant? To a statesman? In what way may the study of geography lead the mind to pious reflections?

LESSON 2d. How does the earth appear? What is really its form? What are around it? If we lived on a different side, how would our feet be directed, and what should we suppose of the part of the heavens towards which our heads pointed? With what is the surface of the earth covered? Which occupies the largest portion, land, or water? What is the first step towards learning the science of geography? Can words convey an idea of the various forms of the earth's surface? What method is taken to make the forms and situations of the seas, countries, &c. understood? What may be said of these pictures and delineations? Of what must you think when you study a map or globe? Can a map represent all the objects in a country?

When a geographer takes his position to draw a map, which way is his face? His right hand? Where does the sun rise? Give some account of a scale of miles. What is the difference between any number of square miles, and as many miles square? How are boundaries represented on maps? How are they fixed upon? What is a natural boundary? What method is taken to prevent quarrels respecting boundaries? How are those between nations determined? By what is a place said to be bounded? How are rivers represented on maps? How, a shore or coast? What is an island? Can you tell me what a hill is, without reading a description in a book? What is that called which is an elevation of land higher than a hill? How are mountains and high hills represented on maps?

LESSON 3d. In placing a city on a map, why cannot we make a picture of every house? What is the proper method of representing a city or village? How are roads delineated? What do you mean by the central part of your map? the northern? the north east, &c.? How can you find the distance of any two places on your map? When is one map said to be on a larger scale than another? If without enlarging the scale of your map you attempt to delineate a much larger country upon it, what will be the consequence?

Note to Instructors.—No questions are made on the Fourth, Fifth, Sixth and Seventh lessons. The reason of this will appear from the examination of those lessons. They are mostly composed of questions on the maps, with such directions as are judged useful both to teachers and pupils. When the definitions occur, the word defined is put in italics, and must suggest the proper question. Many similar cases occur, in the course of the work, where the author thinks questions would be useless, even to the most inexperienced teacher.

LESSON 8th. What is the subject of our lesson? What is the reason that the water in brooks and rivers moves along? Why does it move where the ground is level? Is the country where a river rises, higher or lower than that through which it flows? What is remarked concerning the sources of rivers? Into what do rivers usually discharge their waters? What is the mouth of a river? What can you say respecting the course of rivers? Why are young persons sometimes at a loss about the course of rivers? How could you judge where the principal mountains ought to be placed on your map? What can you tell me of mountains? What is the principal range in the United States? Why is the whole chain sometimes called the Allegany? What do you know of the Allegany mountains? What calculation is made respecting the length of time it would take to make a journey along the Allegany mountains through their whole length? Describe the Green mountains. The White Mountains. Which are the principal peaks in the United States?

LESSON 11th. How many days would it take to travel from the mouth to the source of the Connecticut River, at the rate of fifty miles a day? For what purpose do we represent the Connecticut River by a unit or one! What do these marks ($-|-$, $-$) called plus and minus, signify? What rule is to be observed in comparing other rivers with the Connecticut?

LESSON 12th. What is the subject of your lesson? Speaking of lakes and rivers, what is meant by head waters and outlets?

LESSON 13th. What is a city? What circumstances render cities important objects of study? What do we mean by the capital of a state or country? In what cases is the capital the largest city? Why is it sometimes otherwise in our country? What constitutes a town? a county? a state? What in our country constitutes the general government? What is the business of Congress? In what city do they meet, and what is the building called where they convene? What do we mean by a state house? What is the largest city in the United States and what number of people live in it? What is meant by taking the census?

What is the state of learning in the United States? What are the regulations concerning schools in New England? Is there equal attention paid to education in the other parts of the United States? In what respects do colleges differ from academies? Which are the two most important colleges in our country? How many instructors, called professors, tutors, &c. are there in these colleges? What is a library? How many books are there in the library at Cambridge? What is meant by a college apparatus?

LESSON 14th. What are canals? Which is the principal canal in the United States? Where is the Northern Canal? Give a particular description of a canal. Why are canals useful? What is the use of locks? Give some account of the Lakes in New York. The mineral springs. What two extensive swamps in the United States and where situated?

LESSON 15th. What do you understand by the numbers placed on your map within each state? What do you consider as the unit, or measure country? What do you observe of the extent of the United States on the western side of the Mississippi? What is the number of square miles in the United States? What is remarked concerning the productions of the United States?

EUROPE.

LESSON 16. What ocean must you cross to go to Europe? In what direction, and what distance must you go? What circumstances make Europe a very interesting country to us?

LESSON 17th. What can you say concerning Germany?

LESSON 18th. What is about the length and height of the principal mountains of Europe? Describe a volcano or burning mountain at the time of its eruption. Do volcanoes always exhibit the same appearance? What is the crater of a volcano? What effects are sometimes produced by volcanoes? What is lava? What are the principal volcanic mountains of Europe, and their height?

LESSON 19th. What reasons can you give why a map is not so perfect a representation of the earth's surface, as a globe? What other reason can be given for preferring a globe to the map of the world? What is the greatest distance which any two places can be from each other? What one advantage is there in studying from a map which the globe does not afford? What is that vast collection of water called which covers so large a portion of the surface of the earth? How are oceans divided? How is the land divided? How is the eastern continent divided? The western? What are sometimes called the four quarters of the globe?

LESSON 20th. Describe the parallels of latitude. What is meant by one line being parallel to another? Are these lines really drawn around the earth? Where is the equator drawn? Why might we not imagine the equator and poles as well at one place as another? What is there peculiar in the place where the equator is represented to be? At what two periods in the year is the sun directly over the earth's equator? What are these periods

called? What can you say of the days and nights, and rising and setting of the sun at the time in which the sun is at the equator? What would be the appearance of the sun at this time to a person at the equator? How would it appear to a person thus situated, from the 20th of March to the 21st of June? How, from the 21st of June to the 22d of September? From the 22d of September to the 21st of December? From the 21st of December to the 20th of March? At what time is the sun farthest to the north? To the south? How is a year reckoned? What days are called the solstices? Describe more particularly the appearance of the sun at the equator on the 20th of March. What people see the sun north of them? What is meant by the sun's being vertical? What is the zenith? What is the horizon? What are its cardinal points? What is the meridian?

LESSON 21st. How far to the north is the sun ever vertical? Describe the tropics. What is that portion of the earth over which the sun is sometimes vertical? What is this portion called? Do the days and nights continue equal as we go from the equator to the poles? Beyond what parallels of latitude do the inhabitants have days more than twenty-four hours in length? What are these parallels called? How would the sun appear to a person situated at the Arctic circle on the 20th of March? How would it appear at the same place from the 20th of March till the 21st of June? From this time till the 22d of September? How would it appear at the autumnal equinox and afterwards till the 21st of December? From this time till the period when you commenced your observations of the sun at the Arctic circle? Would the same appearances be exhibited at the Antarctic circle? What science will these observations lead you to understand?

LESSON 22d. What is the subject of your lesson? What method should you take to learn the sun's apparent path in the heavens? Into how many degrees are all circles said to be divided? What are degrees? How many degrees in a quarter of a circle? On what line is the sun always at noon? If at noon the sun should be about half way from the zenith to the horizon, how should you write your observations? If one third how should you express it? What should you notice about the horizon respecting the distance from the point east to the point south? Also from east to north? If the sun should seem to rise about one ninth part of the distance from east to south how would you express it? What circumstance respecting the sun is now necessary for you to know in pursuing your inquiries? Draw and explain the figure which represents the sun moving from the horizon to the meridian. How can you know, as you look up to the sky, where to trace the equator of the heavens? How could you make a judgment concerning the latitude of the place where you live?

Does the sun really change his place with respect to us? What examples can you give of objects appearing to move, when, in reality, they are at rest, and yourself in motion?

To what part of the earth do the feet of the inhabitants always point? What can you say of the part of the heavens to which our heads are directed? What line can you imagine to assist you to understand this difficult subject? Suppose a person should move from the equator to the north, so gently that he does not perceive his own motion, carrying this line with him, the top of which is his zenith, how will the sun appear to him? Or if he goes to the south? What appearance of the sun is thus accounted for, without supposing that either the sun or the earth changes its place, but only the observer? How might the sun's apparent daily motion round the earth from east to west be accounted for? What is the true cause? What is meant by the axis of a body which has circular motion? What is the earth's axis? What other motion has the earth besides that made around its axis every day? To what may the motion of the earth be compared?

LESSON 23d. What two places do you find in going from the equator to either pole, where the sun exhibits remarkable changes in its appearance? How do the tropics and polar circles divide the earth? What is the general rule respecting climates? What are the two principal exceptions to this rule? Give a description of the climate of the different regions of the earth, according to the general facts. On what account do countries differ in their vegetable productions? What vegetables are peculiar to hot countries? What to warm countries? What to temperate? How does the appearance of vegetation alter in going towards the Poles? Has climate any effect upon animals? Which are the most common animals of the temperate zones? What are common to all latitudes? Do the same animals exhibit the same appearance in different climates? What can you say of the animals of the torrid zone? What of that dreaded portion of the animal world called reptiles? What are the most useful animals of the cold regions?

LESSON 24th. What is meant by latitude? How is it reckoned? How many degrees on the earth make a mile? How many degrees are the poles from the equator? What part of a degree is one minute? In what way could you find by multiplication the circumference of the earth? In what way can you find the latitude of a place on the map of the world.

LESSON 25th. How can you find the latitude of S. America? Of N. America? Of Europe? Of Asia? Of New Holland?

LESSON 26th. What are the meridians of places? What places have noon sooner than we do? What later? What me-

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The plan of this work is in many respects peculiar to itself, and professes superior advantages to the young beginner. The general system (like the others of the series) is formed upon the principles of *comparison and classification*, the application of which to facilitate the science of Geography, and with the most eminent success, is claimed to have originated with the Authors of this series. The following remarks are extracted from the "*American Journal of Education*," a work of high reputation published in Boston, and devoted exclusively to the interests of education.

From the American Journal of Education.

"It is a fair attempt at rational, sensible and practical instruction. Very young children here acquire some just and accurate notions of the remarkable and interesting features of the topography of their vicinity, and the general features of their own country; from which they proceed to that of foreign regions, comparing as they go on, every object that is laid before them in the book, with something within the range of their own observation. This little work, in the hands of an intelligent mother or primary teacher, may put a child in possession of more useful information than is to be found in most of the larger geographies; not that it offers such a multitude of facts, but that it selects the familiar, the intelligible, the important,—those which will attract the young readers, practical thinkers, and useful agents in the stage of actual life." For a full exhibition of the advantages possessed by this little work, see the Review and the author's preface.

Hartford, Sept. 1831.